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National Roadway Traffic Noise Exposure Model (NRTNEM) User's Manual

Wyle Labs.
El Segundo, CA

Prepared for

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Washington, DC

Jan 82

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NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL (NRTNEM)

- USER'S MANUAL -

JANUARY 1982

OFFICE OF NOISE ABATEMENT AND CONTROL
U. S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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The National Roadway Traffic Noise Exposure Model (NRTNEM) is comprised of a collection of on-line datasets, some containing programs and others containing data. The manual describes the job submission procedures required to run the NRTNEM as it existed on the NCC (EPA's National Computer Center) in December, 1981, under user ID EPADYN. The NRTNEM actually consists of two models: The General Adverse Response Model ('GAR'), and the Single Event Model ('SEM'). Only one of them can be executed by a job at a time. The Programmer's Manual describes the NRTNEM system in more detail to facilitate program maintenance. The NRTNEM was designed for and runs on an IBM/370 computer under MVS, with TSO (the Time Sharing Option) and WYLBUR, the latter two being conversational direct-access systems.

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A description of the NRTNEM and its data bases is presented in a separate report (available from EPA/ONAC). This report, as well as the "Programmer's Manual" (EPA-550/9-82-201-B) and a computer tape of the NRTNEM programs and data bases are available from NTIS.

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The National Roadway Traffic Noise Exposure Model (NRTNEM) is comprised of a collection of on-line datasets, some containing programs and others containing data. The manual describes the job submission procedures required to run the NRTNEM as it existed on the NCC (EPA's National Computer Center) in December, 1981, under user ID EPADYN.

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FOREWORD

The user is assumed to be familiar with the following documents:

- National Computer Center - IBM System,
  "NCC - IBM WYLBUR Guide"
- U.S. Environmental Protection Agency,
  "NCC - IBM User's Guide"
- IBM, "OS/VS2 TSO Command Language Reference Manual,"
  GC28-0646-4

The National Roadway Traffic Noise Exposure Model is described in the form in which it existed in NCC computer files on August, 1981.

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1. INTRODUCTION

1.1 Purpose

The National Roadway Traffic Noise Exposure Model (NRTNEM) estimates the future impact of road traffic noise on the people living at or near those roads. There are actually two models which make up the total Model:

1. The General Adverse Response Model (GAR):

   It estimates noise impact by summing the A-weighted noise energies from traffic noise events, determining the number of exposed people, and using a generalized adverse response function to calculate a level-weighted population.

2. The Single Event Model (SEM):

   It estimates noise impact on people by combining a count of the number of noise events and their level at each receiver location. Adverse response to specific activities (speaking, sleeping) is calculated according to different schemes for each activity.

Only one model can be run at a time. The user must submit two separate runs if he wishes to operate both models on the same input data.

The models are extremely detailed as described in the other volumes of this document series. The user has control over certain input data, such as:

Vehicle noise levels as a function of time (this simulates the introduction of noise regulations).

Vehicle population growth.

Restrictions on roadway types considered.

Restrictions on place sizes considered.

Restrictions on vehicle types considered.

The future years for which results are calculated.

A small support system exists which is designed to provide fool-proof submissions of jobs, so that the user need not be concerned with details of job control language.

1.2 Computing Systems

1.2.1 Hardware and System Software

NRTNEM was designed for and runs on the U. S. Environmental Protection Agency's IBM/370 computer center under MVS, with TSO (the Time Sharing Option) and WYLBUR, the latter two being conversational direct-access systems.

1.2.2 Support System

NRTNEM is operated by submitting a "job" through TSO. A "job" consists of a sequence of job control language (JCL) statements, beginning with a JOB statement. The support system consists of two files:

a. JCL file:

This file contains all the necessary statements for submitting either a GAR or SEM job.

b. TSO command procedure:

The user "EXECutes" this command procedure under TSO. It will ask him pertinent questions. Depending on the user's answers, it will appropriately modify the JCL file to make it a runnable sequence of statements. The command procedure then automatically submits the job for running and advises the user of the job's identification for later retrieval by the user.

1.2.3 WYLBUR

Whereas TSO is used to create a run (submit a job), it is strongly recommended that the user employ the WYLBUR conversational system to perform all other chores, such as:

a. Preparation of the regulatory scenario file.

b. Retrieval and disposition of completed jobs.

1.2.4 The NRTNEM Files

The model consists of a collection of computer files (data sets) which are kept on random access disc devices. Two of the files have been mentioned above (the JCL and the TSO command procedure files). Table 1-1 contains a complete list; not all files are required to execute the model; file TRAWO was required to construct the model and is of interest only to programmers wishing to modify the code.

1.3 Processing Performed

When the TSO command procedure submits a job and that job subsequently runs, the following job steps take place:

a. Linkedit: Depending on whether GAR or SEM was specified, the appropriate object modules from the BUILD file are extracted and combined with system routines to produce the load module. Apart from selecting GAR or SEM, the user has no influence on this step.

b. Execution: The load module produced in step (a) is executed, i.e., the model now "runs."

c. Plotting: At the user's option, results are printer-plotted.

As will be discussed in Section 2, the user has certain tools to influence the way the model runs. He may, for instance, specify that the impact of only one or a few vehicle types be calculated. He can specify the changing noise levels as new vehicles are introduced year after year into the fleets ("regulation scenarios"). The user also has extensive control over the amount of printed output produced, including printer plots of the results.

1.4 Restrictions and Limitations

Although the model covers the 40-year time period from 1974 to 2013, results can be displayed only for a maximum of 9 years. If data is to be plotted, a minimum of 4 years are required. The years chosen (referred to as "net years") by the user must be within this 40-year interval; the first must always be 1974, baseline for the models.

Table 1-1

NRTNEM Computer Files

(All explicitly named files reside under user-id EPADYN)

Filename	Contents and Characteristics
TRAWO	FORTRAN source code. Partitioned data set, each source module constitutes a data set member.
BUILD	Object module library. Partitioned data set, each member is an object module corresponding to a source module in TRAWO.
FRRXC	A sequential file containing JCL for compiling programs. Produces BUILD members from TRAWO members.
RNMEXE9R	Sequential JCL file which contains all statements necessary to build a complete job for running NRTNEM. Many symbols appear in this file which are substituted by the command procedure file $RNMSUF.
$RNMSUF.CLIST	Sequential TSO command procedure file which is executed by the user in the TSO conversational environment. It performs a complicated editing task upon RNMEXE9R and submits the result as a job to be run.
FIMP	MPD[1] containing fractional impact information used for SEM runs.
FLOMIX08	MPD containing traffic flow and mix data.
MILE	MPD containing highway mileages.
PERCNT	MPD containing traffic percentages by vehicle type.
SIGMA0	MPD used for GAR runs; contains the standard deviations of the vehicular sound levels.
VGFS001	MPD containing master vehicle population and growth information.
name assigned by user	Member of the user's WYLIB containing the user's choice of vehicle population and growth information.
NLDICT	Sequential data file containing a menu of noise levels organized by vehicle type and amount of noise reduction.
name assigned by user	Sequential data file or MPD containing regulation scenario specifications.

---

[1] MPD = member of the partitioned data set WYLIB in user-id EPADYN.

The noise emission characteristics of each vehicle are assumed to be constant over time. However, for medium and heavy trucks, the Model has been modified to incorporate sound level changes with vehicle age (see Appendix G).

1.5 General Description of the Model

The NRTNEM simulates the noise generated by vehicular traffic on the nation's roadway network. The Model does not scale or otherwise "adjust" input data to estimate national noise impact. The Model's estimation procedure is rather direct in that the U.S. population is allocated to roadway traffic conditions surrounding the place of residence. The noise emissions generated by the roadway traffic are then used to estimate the noise exposure of the nation's population.

As with any national simulation model, input data to the Model are statistical in nature. The population in the United States is distributed based upon the Bureau of Census data. The distribution of population relative to roadway traffic conditions is based upon data assembled by the U.S. Department of Transportation's Federal Highway Administration. The noise emission characteristics of vehicles are based upon experimental data collected by the Federal Highway Administration (FHWA), the U.S. Environmental Protection Agency (EPA), and sources in the technical literature.

The Model is a time stream simulation, i.e., the Model uses as input data, factors that alter parameters in time so that the effect of time-varying parameters or otherwise changing projections of a parameter can be simulated. Thus, the Model is a tool both for estimating national exposure to roadway traffic noise and for estimating the sensitivity of specific parameter variation. The need for sensitivity to parameter variations and flexibility in assessing the effect of various source control measures were essentially the reasons for developing the Model, because previous studies had used assumptions and extrapolations to estimate noise exposure. Although the noise exposure estimates of previous studies appeared to be reasonable, it was not possible to evaluate sensitivity to certain parameter variations and look at alternative noise control measures.

The National Roadway Traffic Noise Exposure Model is, in reality, comprised of two separate noise exposure models. These two models are defined as the General Adverse Response Model (GAR) and the Single Event Model (SEM). Both models utilize the same data base to conduct their respective predictions of national exposure to roadway traffic noise in terms of the average 24-hour weighted equivalent noise level, L_{dn}. The day-night sound level, L_{dn}, only considers the average daily sensitivity of the population to noise exposure in that people are considered to be "10 dB more sensitive to noise during nighttime than during the daytime.* Beyond this distinction, the L_{dn} sound level considers the population to be equally sensitive to noise irrespective of their activities when they are exposed to the noise. The SEM attempts to estimate the national population exposure to roadway traffic noise by categories of population activity during the noise exposure. Further, the SEM considers each vehicle type as an independent noise source so that each vehicle's contribution to the overall national population noise exposure may be evaluated. The SEM considers the specific distribution of the population's activities during the day and during the night and the noise-sensitivity of these activities.

The SEM further estimates the number of noise intrusions imposed upon the national population, the level of these intrusions, and the effect of these intrusions that may be attributed to each vehicle as a noise source. These three elements are combined into a single number using the Fractional Impact Methodology. Basically, the SEM estimates two aspects of noise intrusion:

---

*Both models assume the same daytime and nighttime periods as follows:

- Daytime - 7:00 AM to 10:00 PM (0700 to 2200 hours)
- Nighttime - 10:00 PM to 7:00 AM (2200 to 0700 hours)

speech interference and sleep interference. The SEM classifies speech interference by location of the national population when the noise intrusion occurs. The SEM classifies sleep interference as to the probability of being either disturbed (but not awakened) or of being awakened by the intruding noise. The calculation scheme used by the SEM does not assign the same person or portion of the population to two different activities simulationeously. Hence, the noise impact estimates are not "double counted."

Together, the GAR and the SEM represent a single method for estimating the various effects of roadway traffic noise on the nation's population. Hence, the two models represent different methodologies required to describe different effects resulting from the same cause.

A more detailed description of the NRTNEM's structure is presented in Reference 1. Reference 1 also presents information concerning the following specific elements of the NRTNEM computer program:

- Computational procedures
- Program outputs
- Reasonableness of output data
- Data base development.

2. HOW TO USE NRTNEM

While studying this section, the reader may wish to refer to Appendix E which contains two examples of job submission sessions.

There is a minimum number of steps that must be followed for creating a system of files that will result in a valid computer run. These are explained in Section 2.1. Subsequent sections introduce special features available to the user which are left to their default conditions if not used.

2.1 Preliminary Preparation and Minimum Effort

2.1.1 Regulation Instruction File

The user must prepare a file which contains a noise regulation scenario in a certain fixed format described below. The user may name the file in any valid manner; for purposes of this document let us use the name RIF. This file uses data in the noise level library file NLDICT. Its structure and updating method are described in Appendix A. The casual user need not concern himself with updating that library. He must, however, build a regulation instruction file which contains minimum information for specifying regulatory scenarios: vehicle type, year regulation effective, and a code indicating a particular regulation. Here is an example of one line in that instruction file:

```
Y1983V08R80
```

All other lines in the file are analogous to this. The first character in each line is always a Y. The next four characters indicate the year the regulation is effective. The next character is always a V. The next two characters are a two-digit number specifying the vehicle type, and ranging from 01 to 14 (see Table B-5). The next character is always an R. The last two characters in each line are a code which points to a particular collection of noise levels in the dictionary. This code is not necessarily numeric; for instance, baseline is referred to as BL. Other regulations are often coded by their customary "name," i.e., an 80-dB regulation is coded as "80", where that "name" usually refers to the noise limit under maximum acceleration conditions specified by the regulation.

The regulation instruction file (RIF) must be built according to certain rigid rules:

(1) For each vehicle type, the baseline case <u>must</u> be present. For example, for vehicle type 14:

    Y1957V14RBL

    The year is <u>always</u> 1957, and the regulation code is <u>always</u> BL. The only thing that changes is vehicle type. Therefore, RIF consists of at least 14 lines, even if some vehicle types are not used in the analysis.

(2) Vehicle types must appear in the RIF in their numerical order, starting with 01. Within one vehicle type, regulations must be ordered by their appearance in the noise level dictionary file which is typically in order of decreasing noise levels.

(3) The Y in each line of this instruction file is in column 1. There are no imbedded blanks.

(4) The maximum number of instruction lines per vehicle type is five (including the mandatory baseline).

In Appendix A, the reader will find a listing of the noise level dictionary file as it existed at the time of this writing (September 1980). The available regulation levels and codes may be gleaned from that listing.

When RIF's preparation is completed, the user stores it away in CARD format for later reference.

2.1.2 Vehicle Growth Factor File

As a member of his WYLBUR library (WYLIB), the user must have a vehicle growth factor file. For the minimum effort, the user may simply copy the master file provided in user-ID EPADYN. The WYLBUR conversation would be:

```
? USE $CN.EPADYN.S2KC.WYLIB(VGFS001) CLR (CR)*

? SAVE @VGFS001

"VGFS001" SAVED IN WYLIB
```

---

[*] The symbol (CR) denotes keying CARRIAGE RETURN. It is used throughout this document.

Appendix C explains the structure and contents of the vehicle growth factor file in case the user wishes to modify it. Once it is modified (presumably through a WYLBUR editing session), the user stores it into his WYLIB under a name different from the master file's VGFS001.

2.1.3 The Minimum User Effort

The preliminaries accomplished, the user now enters the TSO conversational environment. Once the "READY" message has been obtained, the user executes a TSO command procedure by typing:

```
EXEC $RNMSUF
```

If the user is signed on under a user-ID other than EPADYN, the following must be typed:

```
EXEC 'CN.EPADYN.S2KC.$RNMSUF.CLIST'
```

Currently, the NRTNEM can be run under all user-IDs for account MUSN. The modifications to allow the NRTNEM to be run under different account numbers and user-IDs are described in Appendix F.

The command procedure should now start to execute. The first question concerns which model to run: GAR or SEM. Answer with your choice and hit carriage return.

Next, you are given the opportunity to enter editing commands. For this minimum effort, simply hit carriage return for GAR. For SEM you must specify a vehicle mask indicating which of the 14 vehicle types (Table B-5) are to be included in this run of NRTNEM. The default configuration of this mask for SEM runs is (on line 13700) 14 zeroes:

```
00000000000000
```

Using the TSO CHANGE command, replace any "0" (zero) with a "1" in digit positions which correspond to each vehicle type index for which the user needs to apply the run.

Example:

If "Transit Buses" (digit 11) was the needed vehicle type, key in C 13700 /00000000000000/0000000000100/ (CR)

This would exercise the Model for "Transit Buses."

Example:

If medium and heavy duty trucks, and unmodified and modified motorcycles (digits 8, 9, 13 and 14) were the needed vehicle types, key in

C 13700 /0000000000000/00000001100011/ (CR)

This would exercise the Model for those four vehicle types.

You are now asked to enter the name of the noise regulation scenario specification file. Type RIF (or the name that you chose).

You must next enter the name of the vehicle growth factors file. Answer by typing VGFS001. Following that comes the specification of the net years, i.e., the years for which you want to see results. There must be at least one and at most nine net years (except that the minimum is four if plots are to be obtained). Separate the net years by commas, do not intersperse any blanks, and enclose the whole string in apostrophes. The first net year must always be 1974. For example, you could type:

```
'1974,1980,1999,2010'
```

The last net year cannot be greater than 2013.

The command procedure now asks you to type in certain parameters which will be used on the JOB card for the submitted job. Please refer to the WCC User's Guide for details. A standard response might be:

```
BARRY SAMPLE 20 1 TB 1 E2CM YES
```

Next, bypass another opportunity to enter editing commands with a simple carriage return, unless you suspect that some of your input data was entered erroneously. In such a situation, inspect the suspect data by keying "TOP" and a carriage return. Then perform a TSO "FIND" for the desired data. If that data is not found, the session will be obliterated and you must key "END", carriage return, and begin anew.

The command procedure will now attempt to submit your job. If this is successful, the following message should be displayed:

```
SAVED
JOB "UseridJobid"(Jobnumber) SUBMITTED
DELETE SUBMITTED JCL FILE?  Y OR N:
```

The user responds to this final prompt by keying in "Y (CR)", to which TSO will give its final reply:

```
ENTRY(A) CN.Userid.AccountCode.RNMTEMP.CNTL DELETED
READY
```

You can now log-off the TSO system.

Depending on the priority you specified, you can check on the job's status and dispose of the output in the WYLBUR system (see commands LOC, ROUTE, FETCH, LIST OFFLINE in the WYLBUR guide).

2.2 Overriding the Default Data

The command procedure $RNMSUF issues eight prompts for user input in the course of an NRTNEM job submittal as follows:

```
S1.    VERSION (SEM or GAR):

S3.    ENTER EDITING COMMANDS.

S4.5   REGULATION INSTRUCTION FILE:

S5.    ENTER VEH. GROWTH F. FILE:

S6.    NET-YEARS (MAX 9):

S7.    ENTER-PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
              XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.

S8.    COMMAND:

DELETE SUBMITTED JCL FILE? Y OR N:
```

The responses to the above prompts are discussed in detail in the subsequent sections which concentrate on the most frequently used operations. The prompts' labels (S1 through S8) are used to refer to the steps of the command procedure. For further explanations, the reader should consult Appendix B concerning control strings not discussed here.

2.3 S1-Invoking SEM or GAR

An SEM terminal session is initiated as follows:

```
S1. VERSION (SEM OR GAR): SEM (CR)
```

where the user response is to key in "SEM" and a "carriage return" ((CR)). TSO will then come back with the "S3" prompt after having performed internal editing functions to prepare the JCL file for an SEM job.

Initiation of a GAR run is analogous, except for the substitution of "GAR" for "SEM" in the user's response to the S1 prompt.

2.4 S3-Editing Control Strings

2.4.1 Editing the SEM Control Strings

SEM control strings can be edited upon receiving the S3 prompt followed by a question mark, as follows:

```
S3. ENTER EDITING COMMANDS.
?
```

At this point, TSO is ready to receive changes to the JCL file. Table 2-1 contains a list of all the SEM control strings. A detailed description of these strings is provided in Appendix B. Every time SEM is invoked in S1, the control strings return to these default configurations, thus undoing any TSO edit commands the user may have previously initiated while performing an EXEC $RNMSUF.

Table 2-1

SEM Control Strings

Control String Name	Line Number	Unedited Configuration (default)
IPRINT	13400	111100000000
KMASK	13600	111111
IVMASK	13700	00000000000000
ICONT	13800	000000000000
JMASK	13810	111111111
METMSK	13820	1111001
MODMSK	13830	111
IBEG	13840	5575005

An explanation of TSO editing methods will not be presented here. The user is advised to obtain the following IBM Manual: "OS/VS2 TSO Command Language Reference." In particular, the user is advised to become familiar with the TSO "CHANGE" (or, in acceptable TSO abbreviated form, "C") command.

While the procedure file is in "S3", TSO's "VERIFY ON" has been automatically invoked; thus, the effect of any entered CHANGE's will be immediately verifiable.

- IVMASK Control String

The user will ordinarily want to run SEM for at least one vehicle type. The default condition is for no vehicles. As an example, if "Transit Buses" (digit 11) was the desired vehicle type, the following sequence would insert this into the JCL:

```
? C 13700 /00000000000000/00000000001000/ CR
13700 IVMASK :00000000001000
?
```

where the line led by the first "?" is the edit command to make the change in digit 11; the next line is TSO's verification response which allows inspection of the CHANGEd line; and the line led by the second "?" is the TSO prompt for the user's next edit command.

If a run was to involve more than a single vehicle type, such as medium trucks, heavy duty trucks, unmodified motorcycles and modified motorcycles (digits 8, 9, 13 and 14, respectively), the following illustrates the appropriate edit command:

```
? C 13700 /00000000000000/00000001100011/ CR
```

- IPRINT Control String

For the first job of a series of runs which use the same vehicle data files, IPRINT should be changed as follows:

```
C 13400 /111100000000/111111000110/ CR
```

This IPRINT control string will supply the most comprehensive group of printed tables containing vehicle data which can be inspected to ascertain reasonableness (see Table B-3 for all available output tables). Once the user is satisfied with the vehicle data and the only changes for a run are to be made to data other than vehicle data, IPRINT should be changed as follows:

```
C 13400 /111100000000/110001000000/ CR
```

This will provide an output which contains results necessary to compare runs which utilize identical VGF files and net years.

Additionally, a table of Level-Weighted Populations (LWP's) in a "dB bin versus event bin" matrix is available by making the seventh digit a "1". However, the user is advised to invoke this table very selectively because one such table (at one per page) is printed for each "net year--metric" combination. With five metrics being the maximum for which this table will be printed (it cannot be printed for METMSK digits 5 and 6 which are SEL and LEQ), and the maximum number of net years being 9, the number of "net year--metric" combinations could be as high as 9x5, or 45, quite an unwieldy number of tables to deal with on each run. This table is best suited for fine tuning a decision rather than for first pass, scenario elimination runs.

- ICONT Control String

ICONT provides an economical means of performing verification runs (see IPRINT discussion). Make the first digit a "1" to compute only the vehicle population for the given net years, bypassing the noise impact computations. Runs using this digit cost orders of magnitude less than full capability runs.

ICONT(4) can be used to prevent phasing out vehicle types 1 and 3 after the 1990 model year. Simply change digit 4 to a "1" from its default "0" (zero).

- Other SEM Control Strings

Please refer to Appendix B for a discussion of the control strings not detailed here.

2.4.2 Editing the GAR Control Strings

When in GAR mode, GAR control strings can be edited upon receiving the S3 prompt just as in the SEM case discussed in the previous section. Table 2-2 contains a list of all the GAR control strings. A detailed description of them is provided in Appendix B. Every time GAR is invoked in S1, the control strings return to these default configurations, thus undoing any TSO edit commands the user may have previously initiated while performing an EXEC $RNMSUF.

Table 2-2

GAR Control Strings

Control String Name	Line Number	Unedited Configuration (default)
IPRINT	13400	111111111111
IDUMP	13500	000000000000
KMASK	13600	111111
IVMASK	13700	111111111111111
ICONT	13800	000100000000
JMASK	13810	111111111

Three control strings not found here but used for the SEM are automatically deleted by TSO when GAR is invoked.

- IPRINT Control String

The tables printed out by these default digits enable the user to inspect detailed input data to ascertain accuracy (see Table B-2 for all available output tables). Once satisfied, more manageable output can be obtained by turning digits 3, 5, 10, and 11 off by using "0" (zero) in these positions. However, anytime the VGF file is changed, digits 5 and 11 should be switched on, as these will provide vehicle population information. Once satisfied with nonvehicular data results (e.g., area population density, roadway mileage), digits 3 and 10 can be switched off, unless nonvehicular input data is modified, an unusual occurrence.

- ICONT Control String

Unlike the SEM, GAR's ICONT string defaults digit 4 to prevent phasing out vehicle types 1 and 3 after 1990 model year. If this action does not meet the user's needs, change digit 4 to a "0" (zero).

There is some doubt about the correctness of the printed vehicle population data if ICONT(1) is changed to "1" from its default "0" (zero). The user is therefore advised not to invoke this "short form" option at this time. If verification runs are desired, set ICONT(1)=1 and

IPRINT(5)=0 until satisfied with all desired tables. Then, on at least the first full capacity run (ICONT(1)=0), set IPRINT(5)=1 to check the elements of that table. Once satisfied, IPRINT(5) may be turned off unless continuing modifications are introduced to any vehicle population parameter.

- Other GAR Control Strings

Please refer to Appendix B for discussion of the control strings not detailed here.

2.4.3 Leaving the S3 Stage

When changes to the control strings are complete, the user can leave S3 and move on to S4.5 by responding to the latest "?" prompt for changes with a carriage return:

```
? (CR)
S4.5  REGULATION INSTRUCTION FILE:
```

TSO will respond with a prompt for S4.5, the "Regulation Instruction File."

2.5 S4.5-Applying a Regulation Instruction File

The user is now faced with responding to the following prompt:

```
S4.5  REGULATION INSTRUCTION FILE:
```

The "regulation instruction file" (RIF) is a file previously prepared and saved under a file name of the user's choice. More than one RIF may be saved for use in runs, but each one must have its own unique name. The user's response to the S4.5 prompt is the name of one of these files, followed by a carriage return; to this user response, TSO comes back with its next prompt, S5. This entire interchange appears as follows:

```
S4.5 REGULATION INSTRUCTION FILE: user's RIF file name (CR)
S5.  ENTER VEH. GROWTH F. FILE:
```

If the RIF is a member of a partitioned data set (PDS), the latter must be included in the usual format: PDS name followed by member name in parentheses. RIF should <u>not</u> be a member of WYLIB since RIF should be in CARD format, whereas WYLIB is in EDIT format.

2.6 S5-Applying a Vehicle Growth Factor File

The vehicle growth factor (VGF) file (see Appendix C) is introduced into a run in the same manner as the RIF file, with the complete interchange appearing as follows:

```
S5. ENTER VEH. GROWTH F. FILE: user's VGF file name (CR)

S6. NET-YEAR (MAX 9):
```

2.7 S6-Net Years

If no plots are to be obtained, a minimum of one net year must be entered. If plots are to be obtained, a minimum of four net years must be entered. Baseline (1974) must always be among the net years entered. For example, if only one net year is entered, it must be baseline (1974). The years must be listed in ascending numerical order. A maximum of nine net years may be entered. The highest net year available is 2013. The format for entering net years is as follows:

```
S6. NET-YEARS (MAX 9): '1974,XXXX,XXXX,XXXX,. . .,XXXX' (CR)
```

If one net year is to be entered, it must appear exactly as follows:

```
S6. NET-YEARS (MAX 9): '1974' (CR)
```

TSO will always come back with the prompt for the next data entry opportunity so that the complete interchange for S6 is the following:

```
S6. NET-YEARS (MAX 9): '1974,XXXX,XXXX,. . .,XXXX' (CR)
S7. ENTER-PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
                XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.
```

Single apostrophes must lead and follow the net year string. No spaces may be placed in the string. Commas must separate the years.

2.8 S7-Entry of Job Control Parameters

Step S7 presents the user with the opportunity to customize the job control parameters. A carriage return is entered to communicate to TSO that S7 data input has been included. Default is provided for and results in the following interchange:

```
S7. ENTER-PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
          XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.
          (CR)
S8. COMMMAND:
?
```

The foregoing means that if the carriage return is entered at the first cursor position provided for the user's input, the default parameters will be utilized. Those default parameters are shown in Table 2-3.

Table 2-3

Job Control Parameter Default Values

Entry Symbol	Default Value
PGMRNAME	User's I.D.
RUNNAME	RNMRUN
TIME	(if SEM) 20 minutes (if GAR) 10 minutes
PRTY	2
JOBID	NN
COPY	1
ROOM	E2CM
PLOT	NO

The "X's" in the S7 TSO prompt are the maximum number of characters per symbol with which the user may respond. The user may elect to specify values for all or some of the symbols. However, if only some are specified, they must be specified in succession, without skipping any in between. Following are two examples demonstrating an unacceptable and an acceptable data entry:

Example:

```
S7. ENTER-PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
          XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.
          BARRY             15   5(CR)
S8. COMMAND:
?
```

In the foregoing example, the user intended to default RUNNAME, JOBID, COPY, ROOM, and PLOT. Attempts at defaulting a value which precedes a specified value will not give correct results. Trying to default RUNNAME and then specifying TIME will not work. TSO assigns the values by looking for blanks; therefore, it would assign "BARRY" to PGMRNAME since a blank is found after "BARRY"; "15" would be assigned to RUNNAME since "15" is the next character string to be encountered, and so on.

Example:

```
S7. ENTER-PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
          XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.
          BARRY     EXAMPLE 15   5 (CR)
S8. COMMAND:
?
```

In this example, the user intends to default all values to the right of the symbol PRTY. This is acceptable since no attempt was made to default a value which precedes a specified value. JOBID, COPY, ROOM and PLOT will default to the values shown in Table 2-3; the others will receive the values specified.

PGMRNAME, RUNNAME, JOBID and, sometimes, ROOM, may be any string of the user's choosing. A run generating printed output which is to be hand delivered by WCC to some ultimate destination must utilize a ROOM value assigned by WCC which is WCC's code for that ultimate destination (e.g., "E2CM" for EPA/ONAC).

TIME is a number in minutes indicating the maximum central processor time allowed for this run.

PRTY is the priority number desired for the run. WCC priority option definitions are shown in Table 2-4 below.

Table 2-4

WCC Priority Options

Priority #	Service Time	Cost Factor
5	Next job run	6.0
4	30 minutes	2.0
3	2 hours	1.5
2	4 hours	1.0
1	Overnight	0.8

COPY is the number of desired copies which must (if not defaulted to 1) be a number from 1 through 9.

PLOT is used to define whether or not plots are desired. The user's response must (if not defaulted to NO) be YES or NO. Plots are not expensive. Reasons for not requesting them would be that the job is being submitted for vehicle data verification (ICONT(1)=1); or to eliminate pages of output when plots are of no interest.

2.9 S8-Verifications, Premature Termination, and Additional Changes

S8 is the user's opportunity to change items forgotten or erroneously entered during S3, to verify the correctness of entered data, or to terminate the job submittal session for any reason whatsoever. In the latter case, type in END NOSAVE.

2.9.1 Verifying the Correctness of Entered Data

The user has an opportunity here to verify that data was entered correctly, that changes were made correctly, or, due simply to a change of mind, to find the data to be changed. In any case, before performing the TSO "FIND" command, the user is advised to enter the "TOP" command. "VERIFY ON" has been automatically invoked by TSO upon entry into S8.

If a character string entered under the "FIND" command cannot be found by TSO, the job being prepared for submittal will be rendered irretrievable, requiring termination. That job must then be undertaken all over again.

2.9.2 Changes

First, for SEM, if the plots are not desired for each of the METMSK metrics which are turned on, the IPLOT control string must be changed. Be advised that the IPLOT string should never be changed during S3 and should only be changed while in S8. IPLOT never needs to be changed for GAR runs. The IPLOT control string is shown in Table 2-5.

Table 2-5

SEM IPLOT Default Control String with Plots Invoked

Control String Name	Line Number	Unedited Configuration (default)
IPLOT	13300	2222222

Normally, METMSK digits 5 and 6 are turned off; therefore, plots will be made for metrics 1, 2, 3, 4 and 7 only (see Appendix B). If plots are desired for less than all the metrics that are turned on, the IPLOT digits, which correspond by position to the METMSK digits representing the metrics not desired, must be changed to zero. For instance, if METMSK = 1111001 and no plots are desired for sleep disruption (digit 1) even though computation of that metric is desired, perform the following change in S8:

```
? C 13300 /2222222/0222222/ (CR)
```

to which TSO will respond with the revised line and prompt for next user response:

```
13300 IPLOT :0222222
?
```

S8 is concluded by keying in a carriage return. TSO will respond with system messages and final prompt:

```
? (CR)
SAVED
JOB "UseridJobid"(Jobnumber) SUBMITTED
DELETE SUBMITTED JCL FILE? Y OR N:
```

2.10 Status of the JCL File

The user now has the option of saving or deleting the JCL file for the job just submitted. An "N" will save the JCL file. A "Y" will delete the JCL file.

If the user desires to inspect the file for the job at hand, an "N" will enable a listing of it. The interaction proceeds as follows:

```
DELETE SUBMITTED JCL FILE? Y OR N: N (CR)

YOU MUST DELETE RNMTEMP.CNTL BEFORE NEXT EXEC $RNMSUF.

READY
```

The definition and submission of this job are now complete. However, before the next job can be run, RNMTEMP.CNTL, the JCL file, must be deleted. Neglecting to do so will result in a TSO error upon attempting to submit the next run.

A user response of "Y" will automatically delete the JCL file from the library, freeing the JCL file RNMTEMP.CNTL for use in the next job definition-submittal procedure. The interaction with a "Y" is as follows:

```
DELETE SUBMITTED JCL FILE? Y OR N: Y (CR)

ENTRY (A) CN.Userid.AccountCode.RNMTEMP.CNTL DELETED

READY
```

TSO is now prepared to accept a new run definition through TSO using the EXEC command described in Section 2.1.3.

3. RETRIEVAL OF RESULTS

All output is routed to "HOLD". Upon notification by the system that execution of the job has been completed, the user is advised to retrieve the job while in WYLBUR. Any desired and proper sequence of WYLBUR list and/or route commands may be used subsequent to FETCHing the results.

It is possible to route output directly to a remote batch station for printing of the output thereby eliminating the need to route the job during a WYLBUR session. Line 9020 of the JCL file defaults to:

```
/*ROUTE  PRINT HOLD
```

During the TSO job submission session, Step S3 or S8, "HOLD" can be changed to "REMOTExx" or "RMTxxx", where xx or xxx is the two- or three-digit Remote Id of the target batch station. Examples of Remote Id's: 20 for EPA's Distribution Center at Waterside Mall, Washington, D.C.; 82 for Wyle Laboratories, El Segundo, California; 171 for ORI, Inc., Silver Spring, Maryland.

It is also straightforward to route the output directly to NCC's main central printers by deleting line 9020.

4. ADVANCED EDITING

While in steps S3 or S8 during a TSO session under EXEC $RNMSUF, the user may enter any valid commands allowed under the TSO editor. If he is sufficiently familiar with JCL, he may make changes to the JCL file RNMEXE9R far beyond those made by the command procedure $RNMSUF itself. In most cases, portions of the programmer's guide may need to be consulted for details, and some knowledge of IBM's JCL will be required.

For example, assume that the user wishes to modify the flow mix data which is supplied in file CN.EPADYN.S2KC.WYLIB(FLOMIX08) appearing on line 13150 of RNMEXE9R (see Figure B-1, Appendix B). The procedure is as follows:

- The user copies the above file into a dataset in his own account. Say the name of the copy is CN.EPADYO.S2KC.NEWFLMX (i.e., <u>not</u> in his WYLIB).
- The user edits NEWFLMX and saves the edited version under the same name.
- During S3 or S8 of the $RNMSUF session, he types:

```
C 13150 /DYN.S2KC.WYLIB(FLOMIX08)/DYO.S2KC.NEWFLMX/ (CR)
```

TSO answers with:

```
    13150 // DD DSN=CN.EPADYO.S2KC.NEWFLMX,DISP=SHR
```

This procedure substitutes the standard flowmix data file with one edited by the user.

Another example concerns the plotted output. If the user prefers to send plotting output to a plotting device rather than to the line printer in the form of printer plots, he must delete the plot post-processing step in lines 18500 through 18540 (see Figure B-1) and substitute his own post-processing JCL appropriate for his device. Alternately, he may choose to change the name of the temporary "neutral" (device-independent) plot file &IPPTAPE (line 18450) to a permanent one in his account so that he may obtain the plots in a subsequent job. The DISP parameter in line 18460 will need attention: change PASS to KEEP.

5. INTERPRETING THE OUTPUT RECEIVED

The output from an NRTNEM job consists of the following three parts:

(1) System messages:

A record of the job's trip through the computer system, including allocated resources and charges.

(2) Printed NRTNEM output in the form of a series of tables.

(3) Optional: Plotted NRTNEM output in the form of printer plots.

NRTNEM output (tables as well as plots) are self-explanatory. Some abbreviations are used which are easy to decode:

DLWP - Difference of LWP from baseline (1974)
ENI - Equivalent Noise Impact
IC BUS - Intercity Bus
LT - Light Truck
LWP - Level-Weighted Population
MD MTCY - Modified Motorcycle
NII - Noise Impact Index
PC - Passenger Car
PEXP - Population Exposed
RCI - Relative Change in Impact
SCH BUS - School Bus
TR BUS - Transit Bus
UM MTCY - Unmodified Motorcycle

The only tables not sufficiently annotated are the ones breaking down level-weighted population by dB-bands in the SEM output. It is understood that the tables present "Level-Weighted Population" data.

6. REFERENCES

1. Rudder, F., Jr., L. Ronk, and B. Hutcheson, "National Roadway Traffic Noise Exposure Model," U.S. Environmental Protection Agency, Office of Noise Abatement and Control, Washington, D.C., November 1979.

APPENDIX A

NLDICT: The Noise Level Dictionary File

The fully-qualified name of the Noise Level Dictionary File is and must be:

CN.EPADYN.S2KC.NLDICT

This file is in 80-column card format with a blocksize of 3120.

In order to keep programming simple and execution time fast, file NLDICT contains its data in a strictly ordered format as described now; updates of NLDICT must follow this philosophy:

- Vehicle types must appear in ascending numerical order, starting with 01 (see Table B-5 for decoding).
- Within one vehicle type, regulations should be ordered by decreasing noise levels.
- Data is arranged into blocks; one block contains noise emission characteristics under a particular noise regulation.
- Each block is preceded by an identifying line which starts with *DK in column 1. This is followed after one intervening blank by the vehicle code: a V followed by a two-digit number (from 01 to 14). This is immediately followed by the regulation code: an R followed by a two-character identifier (e.g., "BL" for baseline, or "80" for an 80-dB regulation). The remainder of the line may be used for comments.
- Within one block, the data proper consists of 20 numbers, arranged five to a line, in FORTRAN format (1X,4(F5.1,1H,),F5.1) (see listing below for an example). Each of the five numbers in a line belongs to a speed range. The four lines correspond to the operational modes acceleration, deceleration, cruise, and idle, in that order.

Users may add to this file any number of data blocks formatted as described above. It is recommended that WYLBUR be used for editing NLDICT. Note that line 12940 of the JCL file RNMEXE9R (Appendix B) must be appropriately modified if any portion of the fully-qualified name of the noise level dictionary file is altered. Comments regarding added data blocks may be inserted on the block's identification line.

The contents of NLDICT as of September 29, 1980 follow:

```
 1.    *DK V01RBL
 2.       59.6, 61.5, 63.1, 64.9, 66.8
 3.       50.5, 56.1, 60.1, 63.2, 65.8
 4.       59.8, 62.4, 66.4, 69.5, 72.0
 5.       46.0, 46.0, 46.0, 46.0, 46.0
 6.    *DK V01RQT                        V01RBL W/ QUIET TIRES (7/7/80 WM)
 7.       59.3, 60.8, 61.6, 62.6, 63.7
 8.       47.8, 52.9, 56.4, 59.1, 61.4
 9.       58.6, 58.9, 62.5, 65.1, 67.0
10.       46.0, 46.0, 46.0, 46.0, 46.0
11.    *DK V01R68
12.       59.6, 61.5, 63.1, 64.9, 66.8
13.       50.5, 56.1, 60.1, 63.2, 65.8
14.       59.8, 62.4, 66.4, 69.5, 72.0
15.       46.0, 46.0, 46.0, 46.0, 46.0
16.    *DK V01R66
17.       59.6, 61.5, 63.1, 64.9, 66.8
18.       50.5, 56.1, 60.1, 63.2, 65.8
19.       59.8, 62.4, 66.4, 69.5, 72.0
20.       46.0, 46.0, 46.0, 46.0, 46.0
21.    *DK V01R64
22.       58.1, 60.3, 62.3, 64.4, 66.4
23.       50.0, 55.7, 59.8, 63.0, 65.6
24.       58.9, 62.0, 66.1, 69.3, 71.9
25.       46.0, 46.0, 46.0, 46.0, 46.0
26.    *DK V02RBL
27.       60.8, 62.5, 63.9, 65.5, 67.1
28.       50.5, 56.1, 60.1, 63.2, 65.8
29.       59.8, 62.4, 66.4, 69.5, 72.0
30.       46.0, 46.0, 46.0, 46.0, 46.0
31.    *DK V02RQT                        V02RBL W/ QUIET TIRES (7/7/80 WM)
32.       60.6, 62.0, 62.7, 63.6, 64.3
33.       47.8, 52.9, 56.4, 59.1, 61.4
34.       58.6, 58.9, 62.5, 65.1, 67.0
35.       46.0, 46.0, 46.0, 46.0, 46.0
36.    *DK V02R68
37.       60.8, 62.5, 63.9, 65.5, 67.1
38.       50.5, 56.1, 60.1, 63.2, 65.8
39.       59.8, 62.4, 66.4, 69.5, 72.0
40.       46.0, 46.0, 46.0, 46.0, 46.0
41.    *DK V02R66
42.       60.1, 61.9, 63.4, 65.1, 66.9
43.       50.2, 55.9, 60.0, 63.1, 65.7
44.       59.4, 62.2, 66.2, 69.4, 71.9
45.       46.0, 46.0, 46.0, 46.0, 46.0
46.    *DK V02R64
47.       58.1, 60.3, 62.3, 64.4, 66.4
48.       49.6, 55.5, 59.6, 62.8, 65.4
49.       58.2, 61.8, 66.0, 69.2, 71.8
50.       46.0, 46.0, 46.0, 46.0, 46.0
51.    *DK V03RBL
52.       60.3, 62.5, 64.0, 65.6, 67.2
53.       50.5, 56.1, 60.1, 63.2, 65.8
54.       59.8, 62.4, 66.4, 69.5, 72.0
55.       46.0, 46.0, 46.0, 46.0, 46.0
56.    *DK V03RQT                        V03RBL W/ QUIET TIRES (7/7/80 WM)
57.       60.1, 62.0, 62.9, 63.7, 64.5
58.       47.8, 52.9, 56.4, 59.1, 61.4
59.       58.6, 58.9, 62.5, 65.1, 67.0
60.       46.0, 46.0, 46.0, 46.0, 46.0
61.    *DK V03R68
```

```
 62.        59.5, 61.8, 63.5, 65.2, 67.0
 63.        50.2, 55.9, 59.9, 63.1, 65.6
 64.        59.3, 62.2, 66.2, 69.4, 71.9
 65.        46.0, 46.0, 46.0, 46.0, 46.0
 66.       *DK V03R66
 67.        57.5, 60.3, 62.3, 64.4, 66.4
 68.        49.6, 55.4, 59.6, 62.8, 65.4
 69.        58.1, 61.8, 65.9, 69.2, 71.8
 70.        46.0, 46.0, 46.0, 46.0, 46.0
 71.       *DK V03R64
 72.        55.5, 58.9, 61.4, 63.8, 66.1
 73.        49.2, 55.1, 59.3, 62.6, 65.3
 74.        57.2, 61.5, 65.8, 69.0, 71.7
 75.        46.0, 46.0, 46.0, 46.0, 46.0
 76.       *DK V04RBL
 77.        62.9, 64.3, 65.4, 66.6, 68.0
 78.        50.5, 56.1, 60.1, 63.2, 65.8
 79.        59.8, 62.4, 66.4, 69.5, 72.0
 80.        46.0, 46.0, 46.0, 46.0, 46.0
 81.       *DK V04RQT                     V04RBL W/ QUIET TIRES (7/7/80 WM)
 82.        62.9, 63.6, 64.1, 65.2, 65.9
 83.        47.8, 52.9, 56.4, 59.1, 61.4
 84.        58.6, 58.9, 62.5, 65.1, 67.0
 85.        46.0, 46.0, 46.0, 46.0, 46.0
 86.       *DK V04R68
 87.        62.1, 63.6, 64.8, 66.1, 67.6
 88.        50.2, 55.9, 59.9, 63.1, 65.6
 89.        59.3, 62.2, 66.2, 69.4, 71.9
 90.        46.0, 46.0, 46.0, 46.0, 46.0
 91.       *DK V04R66
 92.        60.1, 61.9, 63.4, 65.1, 66.9
 93.        49.6, 55.4, 59.6, 62.8, 65.4
 94.        58.1, 61.8, 65.9, 69.2, 71.8
 95.        46.0, 46.0, 46.0, 46.0, 46.0
 96.       *DK V04R64
 97.        58.1, 60.3, 62.3, 64.4, 66.4
 98.        49.2, 55.1, 59.3, 62.6, 65.3
 99.        57.2, 61.5, 65.8, 69.0, 71.7
100.        46.0, 46.0, 46.0, 46.0, 46.0
101.       *DK V05RBL
102.        62.6, 64.6, 65.9, 67.3, 68.7
103.        51.7, 57.3, 61.3, 64.4, 67.0
104.        61.0, 63.6, 67.6, 70.7, 73.2
105.        46.0, 46.0, 46.0, 46.0, 46.0
106.       *DK V05RQT                     V05RBL W/ QUIET TIRES (7/7/80 WM)
107.        62.4, 64.2, 65.0, 65.8, 66.4
108.        49.2, 54.3, 57.9, 60.6, 62.9
109.        59.9, 60.3, 63.9, 66.6, 68.6
110.        46.0, 46.0, 46.0, 46.0, 46.0
111.       *DK V05R68
112.        59.5, 62.0, 63.9, 65.8, 67.7
113.        50.7, 56.6, 60.7, 63.9, 66.6
114.        59.3, 62.9, 67.1, 70.3, 72.9
115.        46.0, 46.0, 46.0, 46.0, 46.0
116.       *DK V05R66
117.        57.5, 60.5, 62.8, 65.1, 67.2
118.        50.3, 56.2, 60.4, 63.7, 66.4
119.        58.3, 62.6, 66.8, 70.1, 72.8
120.        46.0, 46.0, 46.0, 46.0, 46.0
121.       *DK V05R64
122.        55.5, 59.3, 62.0, 64.6, 66.9
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123.        50.0, 56.0, 60.2, 63.6, 66.3
124.        57.6, 62.4, 66.7, 70.0, 72.7
125.        46.0, 46.0, 46.0, 46.0, 46.0
126.      *DK V06RBL
127.        63.3, 65.1, 66.5, 68.2, 69.9
128.        53.4, 59.0, 63.0, 66.1, 68.7
129.        62.7, 65.3, 69.3, 72.4, 74.9
130.        46.0, 46.0, 46.0, 46.0, 46.0
131.      *DK V06RQT                    V06RBL W/ QUIET TIRES (7/7/80 WM)
132.        63.1, 64.4, 65.2, 66.2, 67.0
133.        50.7, 55.2, 59.3, 62.0, 64.3
134.        61.8, 61.8, 65.4, 68.0, 69.9
135.        46.0, 46.0, 46.0, 46.0, 46.0
136.      *DK V06R68
137.        62.1, 64.1, 65.8, 67.7, 69.5
138.        53.0, 58.7, 62.8, 65.9, 68.5
139.        61.9, 65.0, 69.0, 72.2, 74.8
140.        46.0, 46.0, 46.0, 46.0, 46.0
141.      *DK V06R66
142.        60.1, 62.6, 64.8, 67.0, 69.1
143.        52.4, 58.3, 62.4, 65.7, 68.3
144.        60.8, 64.6, 68.8, 72.0, 74.7
145.        46.0, 46.0, 46.0, 46.0, 46.0
146.      *DK V06R64
147.        58.1, 61.3, 63.9, 66.5, 68.8
148.        52.0, 58.0, 62.2, 65.5, 68.2
149.        59.9, 64.4, 68.6, 71.9, 74.6
150.        46.0, 46.0, 46.0, 46.0, 46.0
151.      *DK V07RBL
152.        65.3, 66.7, 67.5, 68.4, 69.4
153.        52.3, 57.9, 61.9, 65.0, 67.6
154.        61.6, 64.2, 68.2, 71.3, 73.8
155.        46.0, 46.0, 46.0, 46.0, 46.0
156.      *DK V07RQT                    V07RBL W/ QUIET TIRES (7/7/80 WM)
157.        65.2, 66.5, 67.0, 67.5, 68.0
158.        50.7, 56.1, 59.9, 62.8, 65.2
159.        60.8, 62.2, 66.0, 68.9, 71.2
160.        46.0, 46.0, 46.0, 46.0, 46.0
161.      *DK V07R68
162.        61.2, 63.0, 64.3, 65.8, 67.4
163.        50.3, 56.2, 60.3, 63.6, 66.2
164.        58.8, 62.5, 66.7, 69.9, 72.6
165.        46.0, 46.0, 46.0, 46.0, 46.0
166.      *DK V07R66
167.        59.2, 61.3, 63.0, 64.9, 66.7
168.        49.7, 55.6, 59.9, 63.1, 65.8
169.        57.7, 62.0, 66.3, 69.6, 72.2
170.        46.0, 46.0, 46.0, 46.0, 46.0
171.      *DK V07R64
172.        57.2, 59.8, 62.0, 64.2, 66.3
173.        49.3, 55.3, 59.5, 62.8, 65.6
174.        56.9, 61.7, 66.0, 69.3, 72.0
175.        46.0, 46.0, 46.0, 46.0, 46.0
176.      *DK V08RBL
177.        75.1, 75.6, 76.2, 76.8, 77.7
178.        65.8, 70.0, 73.0, 75.1, 76.8
179.        77.2, 77.2, 78.1, 80.2, 81.7
180.        54.0, 54.0, 54.0, 54.0, 54.0
181.      *DK V08R83
182.        75.1, 75.6, 76.2, 76.8, 77.7
183.        65.8, 70.0, 73.0, 75.1, 76.8
```

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184.         77.2, 77.2, 78.1, 80.2, 81.7
185.         54.0, 54.0, 54.0, 54.0, 54.0
186.       *DK V08R80
187.         74.8, 75.3, 75.9, 76.6, 77.5
188.         65.5, 69.8, 72.7, 74.9, 76.7
189.         76.9, 76.9, 77.9, 80.0, 81.6
190.         54.0, 54.0, 54.0, 54.0, 54.0
191.       *DK V08RQA                   V08R80 W/ QUIET TIRES (7/7/80 WM)
192.         74.8, 75.2, 75.6, 76.0, 76.4
193.         65.3, 69.4, 72.1, 73.9, 75.3
194.         76.5, 76.5, 76.9, 78.4, 79.0
195.         54.0, 54.0, 54.0, 54.0, 54.0
196.       *DK V08R77
197.         71.8, 72.4, 73.3, 74.4, 75.8
198.         62.8, 67.2, 70.4, 73.0, 75.0
199.         74.2, 74.3, 76.0, 78.5, 80.6
200.         54.0, 54.0, 54.0, 54.0, 54.0
201.       *DK V08R75
202.         69.8, 70.6, 71.8, 73.2, 75.0
203.         61.0, 65.7, 69.2, 71.9, 74.2
204.         72.3, 72.8, 75.0, 77.8, 80.2
205.         54.0, 54.0, 54.0, 54.0, 54.0
206.       *DK V08RQB                   V08R75 W/ QUIET TIRES (7/7/80 WM)
207.         69.7, 70.3, 71.0, 71.7, 72.7
208.         60.4, 64.6, 67.6, 69.7, 71.2
209.         71.8, 71.8, 72.8. 74.6, 76.0
210.         54.0, 54.0, 54.0, 54.0, 54.0
211.       *DK V08R65
212.         59.8, 60.6, 61.8, 63.2, 65.0
213.         51.0, 55.7, 59.2, 61.9, 64.2
214.         62.3, 62.8, 65.0, 67.8, 70.2
215.         44.0, 44.0, 44.0, 44.0, 44.0
216.       *DK V09RBL
217.         82.7, 82.8, 83.0, 83.4, 84.0
218.         73.9, 77.3, 79.6, 81.4, 82.7
219.         83.6, 83.4, 84.2, 85.7, 86.8
220.         63.0, 63.0, 63.0, 63.0, 63.0
221.       *DK V09R83
222.         78.9, 79.1, 79.6, 80.4, 81.5
223.         70.2, 73.9, 76.5, 78.6, 80.4
224.         79.8, 80.0, 81.5, 83.7, 85.6
225.         60.0, 60.0, 60.0, 60.0, 60.0
226.       *DK V09R80
227.         75.9, 76.3, 77.1, 78.4, 80.1
228.         67.5, 71.4, 74.4, 77.0, 79.1
229.         77.0, 77.7, 79.9, 82.6, 85.0
230.         57.0, 57.0, 57.0, 57.0, 57.0
231.       *DK V09RQA                   V09R80 W/ QUIET TIRES (7/7/80 WM)
232.         75.8, 76.0, 76.4, 76.9, 77.9
233.         67.1, 70.5, 72.9, 74.8, 76.0
234.         76.2, 76.2, 76.4, 79.2, 80.4
235.         57.0, 57.0, 57.0, 57.0, 57.0
236.       *DK V09R77
237.         72.9, 73.5, 75.1, 77.0, 79.2
238.         65.0, 69.4, 72.9, 75.8, 78.4
239.         74.3, 75.8, 78.8, 82.0, 84.7
240.         55.0, 55.0, 55.0, 55.0, 55.0
241.       *DK V09R75
242.         70.9, 71.9, 74.0, 76.3, 78.8
243.         63.5, 68.3, 72.1, 75.3, 78.0
244.         72.6, 74.8, 78.3, 81.7, 84.6
```

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245.          53.0, 53.0, 53.0, 53.0, 53.0
246.        *DK V09RQB                  V09R75 W/ QUIET TIRES (7/7/80 WM)
247.          70.7, 71.1, 72.3, 73.6, 75.4
248.          62.4, 66.3, 69.1, 71.5, 73.4
249.          71.9, 72.4, 74.4, 76.9, 79.1
250.          53.0, 53.0, 53.0, 53.0, 53.0
251.        *DK V09R65
252.          60.9, 61.9, 64.0, 66.3, 68.8
253.          53.5, 58.3, 62.1, 65.3, 68.0
254.          62.6, 64.8, 68.3, 71.7, 74.6
255.          43.0, 43.0, 43.0, 43.0, 43.0
256.        *DK V10RBL
257.          81.6, 82.0, 82.3, 82.6, 82.8
258.          68.1, 71.4, 73.8, 75.6, 77.1
259.          76.0, 76.0, 78.4, 80.2, 81.7
260.          62.0, 62.0, 62.0, 62.0, 62.0
261.        *DK V10RQT                  V10RBL W/ QUIET TIRES (7/7/80 WM)
262.          81.6, 82.0, 82.2, 82.4, 82.5
263.          68.0, 71.1, 73.3, 74.8, 75.8
264.          75.5, 75.5, 77.9, 78.7, 79.2
265.          62.0, 62.0, 62.0, 62.0, 62.0
266.        *DK V10R83
267.          77.8, 78.3, 78.6, 79.0, 79.6
268.          64.5, 68.1, 70.8, 73.0, 75.0
269.          72.4, 73.0, 75.9, 78.3, 80.5
270.          59.0, 59.0, 59.0, 59.0, 59.0
271.        *DK V10R80
272.          74.8, 75.3, 75.8, 76.5, 77.4
273.          61.8, 65.7, 68.9, 71.5, 73.9
274.          69.6, 71.0, 74.5, 77.4, 80.0
275.          56.0, 56.0, 56.0, 56.0, 56.0
276.        *DK V10R77
277.          71.8, 72.4, 73.2, 74.3, 75.6
278.          59.3, 63.8, 67.4, 70.5, 73.2
279.          67.1, 69.6, 73.5, 76.8, 79.7
280.          53.0, 53.0, 53.0, 53.0, 53.0
281.        *DK V10R75
282.          69.8, 70.6, 71.6, 73.0, 74.7
283.          57.9, 62.8, 66.8, 70.1, 72.9
284.          65.6, 68.9, 73.1, 76.6, 79.6
285.          51.0, 51.0, 51.0, 51.0, 51.0
286.        *DK V10R65
287.          59.8, 60.6, 61.6, 63.0, 64.7
288.          47.9, 52.8, 56.8, 60.1, 62.9
289.          55.6, 58.9, 63.1, 66.6, 69.6
290.          41.0, 41.0, 41.0, 41.0, 41.0
291.        *DK V11RBL
292.          81.0, 81.0, 81.1, 81.2, 81.5
293.          63.7, 67.8, 70.6, 72.9, 74.7
294.          73.0, 73.0, 75.8, 78.1, 79.9
295.          58.0, 58.0, 58.0, 58.0, 58.0
296.        *DK V11RQT                  V11RBL W/ QUIET TIRES (7/7/80 WM)
297.          81.0, 81.0, 81.0, 81.0, 81.1
298.          63.4, 67.2, 69.5, 71.2, 72.2
299.          72.0, 72.0, 74.0, 75.2, 75.1
300.          58.0, 58.0, 58.0, 58.0, 58.0
301.        *DK V11R83
302.          81.0, 81.0, 81.1, 81.2, 81.5
303.          63.7, 67.8, 70.6, 72.9, 74.7
304.          73.0, 73.0, 75.8, 78.1, 79.9
305.          58.0, 58.0, 58.0, 58.0, 58.0
```

```
306.      *DK V11R80
307.        78.2, 78.2, 78.4, 78.7, 79.2
308.        61.3, 65.6, 68.9, 71.5, 73.7
309.        70.4, 71.1, 74.5, 77.3, 79.6
310.        55.0, 55.0, 55.0, 55.0, 55.0
311.      *DK V11R77
312.        75.2, 75.3, 75.6, 76.2, 77.1
313.        58.9, 63.8, 67.5, 70.5, 73.1
314.        67.8, 69.6, 73.6, 76.8, 79.5
315.        52.0, 52.0, 52.0, 52.0, 52.0
316.      *DK V11R75
317.        73.2, 73.3, 73.8, 74.7, 75.9
318.        57.6, 62.8, 66.8, 70.1, 72.9
319.        63.4, 68.9, 73.1, 76.6, 79.5
320.        50.0, 50.0, 50.0, 50.0, 50.0
321.      *DK V11R65
322.        63.2, 63.3, 63.8, 64.7, 65.9
323.        47.6, 52.8, 56.8, 60.1, 62.9
324.        53.4, 58.9, 63.1, 66.6, 69.5
325.        40.0, 40.0, 40.0, 40.0, 40.0
326.      *DK V12RBL
327.        77.6, 78.1, 78.4, 78.9, 79.4
328.        63.7, 67.8, 70.6, 72.9, 74.7
329.        73.0, 73.0, 75.8, 78.1, 79.9
330.        58.0, 58.0, 58.0, 58.0, 58.0
331.      *DK V12RQT                    V12RBL W/ QUIET TIRES (7/7/80 WM)
332.        77.6, 78.0, 78.2, 78.5, 78.7
333.        63.4, 67.2, 69.5, 71.2, 72.2
334.        72.0, 72.0, 74.0, 75.2, 75.1
335.        58.0, 58.0, 58.0, 58.0, 58.0
336.      *DK V12R83
337.        77.6, 78.1, 78.4, 78.9, 79.4
338.        63.7, 67.8, 70.6, 72.9, 74.7
339.        73.0, 73.0, 75.8, 78.1, 79.9
340.        58.0, 58.0, 58.0, 58.0, 58.0
341.      *DK V12R80
342.        74.8, 75.3, 75.8, 76.5, 77.4
343.        61.3, 65.6, 68.9, 71.5, 73.7
344.        70.4, 71.1, 74.5, 77.3, 79.6
345.        55.0, 55.0, 55.0, 55.0, 55.0
346.      *DK V12R77
347.        71.8, 72.4, 73.2, 74.3, 75.6
348.        58.9, 63.8, 67.5, 70.5, 73.1
349.        67.8, 69.6, 73.6, 76.8, 79.5
350.        52.0, 52.0, 52.0, 52.0, 52.0
351.      *DK V12R75
352.        69.8, 70.6, 71.6, 73.0, 74.7
353.        57.6, 62.8, 66.8, 70.1, 72.9
354.        66.2, 68.9, 73.1, 76.6, 79.5
355.        50.0, 50.0, 50.0, 50.0, 50.0
356.      *DK V12R65
357.        59.8, 60.6, 61.6, 63.0, 64.7
358.        47.6, 52.8, 56.8, 60.1, 62.9
359.        56.2, 58.9, 63.1, 66.6, 69.5
360.        40.0, 40.0, 40.0, 40.0, 40.0
361.      *DK V13RXX                   BASELINE SUPERSEDED BY V13RBL (7/25/80 WM)
362.        73.3, 74.9, 75.4, 75.7, 75.9
363.        61.5, 65.9, 69.0, 71.4, 73.4
364.        66.9, 71.3, 74.4, 76.9, 78.9
365.        58.9, 58.9, 58.9, 58.9, 58.9
366.      *DK V13RBL              V13RXX W/ ACCELS CORRECTED BY -1 (7/25/80 WM)
```

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367.        72.3, 73.9, 74.4, 74.7, 74.9
368.        61.5, 65.9, 69.0, 71.4, 73.4
369.        66.9, 71.3, 74.4, 76.9, 78.9
370.        58.9, 58.9, 58.9, 58.9, 58.9
371.       *DK V13R83
372.        71.5, 73.1, 73.6, 73.9, 74.1
373.        60.7, 65.1, 68.2, 70.6, 72.6
374.        66.1, 70.5, 73.6, 76.1, 78.1
375.        58.3, 58.3, 58.3, 58.3, 58.3
376.       *DK V13R80
377.        68.5, 70.1, 70.6, 70.9, 71.1
378.        57.7, 62.1, 65.2, 67.6, 69.6
379.        63.1, 67.5, 70.6, 73.1, 75.1
380.        55.3, 55.3, 55.3, 55.3, 55.3
381.       *DK V13R78
382.        66.5, 68.1, 68.6, 68.9, 69.1
383.        55.7, 60.1, 63.2, 65.6, 67.6
384.        61.1, 65.5, 68.6, 71.1, 73.1
385.        53.3, 53.3, 53.3, 53.3, 53.3
386.       *DK V13R75
387.        63.5, 65.1, 65.6, 65.9, 66.1
388.        52.7, 57.1, 60.2, 62.6, 64.6
389.        58.1, 62.5, 65.6, 68.1, 70.1
390.        50.3, 50.3, 50.3, 50.3, 50.3
391.       *DK V13R65
392.        53.5, 55.1, 55.6, 55.9, 56.1
393.        41.7, 46.1, 49.2, 51.6, 53.6
394.        47.1, 51.5, 54.6, 57.1, 59.1
395.        40.2, 40.2, 40.2, 40.2, 40.2
396.       *DK V14RBL
397.        87.5, 89.1, 89.6, 89.9, 90.1
398.        75.7, 80.1, 83.2, 85.6, 87.6
399.        81.1, 85.5, 88.6, 91.1, 93.1
400.        72.0, 72.0, 72.0, 72.0, 72.0
401.       *DK END
```

APPENDIX B

The Job Control Language File for Submitting NRTNEM Jobs

Figure B-1 (all figures and tables of this appendix appear together at the end of Appendix B) shows a listing of RNMEXE9R, the Job Control Language (JCL) file used for submitting NRTNEM batch jobs. The line numbers appear in Columns 73 through 80 as eight-digit decimal numbers with leading zeroes. The following is a line by line discussion of this file. All character strings preceded by a #-sign are symbols which are replaced during the editing process by the TSO command procedure which submits jobs.

Line or Line Range	Explanation
9000-9001	Job statement
9020	Disposition of printed output (there is only one print file, no punched or pen plotting output)
9954-9995	Linkedit job step
9986-9989	Routines needed for GAR runs only
9991-9994	Routines needed for SEM runs only
10000-18200	Job steps that execute NRTNEM (step name is AUSF)
10000-13200	JCL for AUSF step
13300-18200	Input data to NRTNEM; FORTRAN logical unit 4
13300-13840	Control strings: they control certain functions. Control string digit positions are counted left to right.
13300	IPLOT is a plot control string consisting of seven positional digits. All seven IPLOT digits default to "0" (zero) if there is no response to the plot prompt during EXEC $RNMUF, thus suppressing the plots. o The GAR reads only the first digit; the remaining six are ignored. The first digit must be either "1" or "0" (zero). If it is "0" (zero), no results are plotted. If it is "1", seven curves will be plotted with respect to "year", as detailed in Table B-1.

- The SEM reads all seven digits. Each digit positionally corresponds to its similarly placed digit in the METMSK control string (see Table B-9). If either the IPLOT digit or its corresponding METMSK digit is "0" (zero), no curve will be plotted for that metric. If both the IPLOT digit and its corresponding METMSK digit are not "0's" (zeroes), the curve for that metric will be plotted.

13400 IPRINT is a string of 12 positional, but otherwise independent, flag digits. If an IPRINT digit is "1" (one), its table is printed; otherwise it is not.

- GAR tables (see Table B-2) - The 12th digit is reserved for future use and presently has no significance other than as a position holder. GAR default is "111111111111".
- SEM tables (see Table B-3) - The 8th, 9th, and 12th digits are reserved for future use and presently have no significance other than as position holders. SEM default is "111100000000".

13500 IDUMP - Dump control string consisting of 12 digits. It selectively activates any combination of 12 strategically placed dump statements. It is used only by programmers who make changes to the source code to check on intermediate results. The default corresponds to no dumps (12 zeroes). Printed output can be very large if certain dump control bits are turned on.

13600 KMASK - Six-digit control string indicating whether or not to include any or all of the six roadway types (see Table B-4) in the run. Default is 111111. If only roadway type 4 is desired, '111111' must be changed to '000100'.

13700 IVMASK - A 14-digit control string indicating whether or not to include any or all of the 14 vehicle types (see Table B-5). The SEM default is all zeroes; therefore, this line must be changed to include at least one vehicle type. If vehicle type 11 is needed, '00000000000000' must be changed to '00000000001000'.

The GAR default consists of all ones; thus, all 14 vehicle types are considered.

13800 ICONT - A 12-digit control string that influences certain behaviors of the model. See Tables B-6 and B-7.

13810 JMASK - A nine-digit control string used to select any or all area types (see Table B-8). The default condition corresponds to all ones, i.e., select all areas. To ignore an area, the appropriate digit must be set to zero.

13820 METMSK - A positional seven-digit control string indicating the metrics to be computed (see Table B-9). Used for SEM runs only. This line is automatically deleted by the system for GAR runs.

A "1" in a digit position will command computation of the associated metric. A "0" (zero) will bypass its computation. The default condition is the string "111001".

13830 MODMSK - Vehicle operating mode mask consisting of three positional digits (see Table B-10); used by SEM only; automatically deleted by the system for GAR runs.

If a digit is a "1" its mode is considered during computations. If it is a "0" (zero), it is bypassed. Default is "111".

13840 IBEG - Used by SEM only; automatically deleted by the system for GAR runs. Selects a 10 bin range from the 20 bins available for the SEM's printed dB bin tables. Each bin contains a 5 dB increment. The mask is comprised of seven positional digits, one for each computable metric. The default string is 5575005 (see Table B-11).

Example of an IBEG digit modification:

> If, in a particular digit position of the control string, a 5 was changed to a 3, then the appropriate table would range from bin 4 through 13, which is 115 dB through 65 dB.

13900-14200	VBD - four lines containing vehicle mix breakdown ratios for 1974, 1977 and 1985. See Appendix D for a more detailed explanation.
14300, 14400	14400 contains the net years. 14300 contains the quantity of net years.
14722-14756	RATIO - is used only by SEM.
14800-18200	Title block that appears at the beginning of an NRTNEM output. It is extensively edited during the TSO job submission session.
17300-18100	Space reserved for run-specific comments. The user may fill some of this space with comments via appropriate TSO editing commands during the job submission session at Steps S3 or S8.
18310-18540	Job control language statements for plotting results. This section is deleted if no plots are desired.
18310-18430	Linkedit step.
18440-18490	Generation of neutral plotting file.
18500-18540	Conversion of neutral plot data to printer plots.

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```
//#SYSUID JOB (#ACCT,#YLE,,25,,,#COPY,,),#MANNAME,                      00009000
//       TIME=(#TIME,0),NOTIFY=#SYSUID,PRTY=#PRTY                       00009001
/*ROUTE  PRINT HOLD
//* THIS IS FILE RNMEXE9R (1983 SEP 23)                                 00009020
//*         TO BE EDITED BY #RNMSUF.CLIST                               00009050
//LKED     EXEC PGM=IEWL,REGION=192K                                    00009051
//SYSPRINT DD  SYSOUT=A                                                 00009054
//SYSLMOD  DD  DSN=&&LOD(VS9R),DISP=(,PASS),UNIT=SYSDA,                 00009056
//             SPACE=(CYL,(2,1,2),RLSE),DCB=BUFNO=1                     00009058
//SYSUT1   DD  UNIT=SYSDA,SPACE=(1024,(120,120),,,ROUND),               00009060
//             DCB=BUFNO=1                                              00009062
//SYSLIB   DD  DSN=SYS1.FORTLIB,DISP=SHR                                00009064
//RNMOLIB  DD  DSN=CN.EPADYN.S2KC.BUILD,DISP=SHR                        00009066
//SYSLIN   DD  *                                                        00009070
 INCLUDE RNMOLIB(#MAINP,#BKD)                                           00009072
 INCLUDE RNMOLIB(SERESC,ZERO,                                           00009075
             ADD,CONST,DPLEV,FACTOR,FIX,HEADER,IYBAS,IYES,             C00009985
             IYREF,PRINT1,PRINT2,PRINT3,PRINT4,PRINT5,PRINT6,          C00009986
             PRINT7,PRINT8,PRINT9,PRNT10,PRNT11,RAD,UPDATE,VRD,        C00009987
             VEHPOP,XMINUS,                                            C00009988
             COLECT,DBBAND,DUMPER,EVENTS,EVNTDR,FIXSEM,HEADG,          C00009989
             HEADRSEM,HEADV,IYBASSEM,IYFSSEM,IYREFSEM,NORMAL,          C00009991
             PRT1SEM,PRT10SEM,PRT11SEM,PRT2SEM,PRT3SEM,PRT4SEM,        C00009992
             PRT5SEM,TABLE,TIMSTRBS,UPDATSEM,VRDSEM,VEPOPSEM,          C00009993
             ZERO1)                                                    C00009994
//AUSF   EXEC  PGM=LOADER,PARM='EP=MAIN,TERM',REGION=#REGN              00009995
//SYSLIN DD DSN=*.LKED.SYSLMOD,DISP=(OLD,DELETE,DELETE)                 00010000
//SYSLOUT DD SYSOUT=A                                                   00010020
//SYSTERM DD SYSOUT=A                                                   00010040
//FT05F001 DD DSN=#SYSPREF.WYLIB(#REGSCN1),DISP=SHR                     00010060
//FT06F001 DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3155)           00012500
//FT01F001 DD DSNAME=&PLINF,DISP=(NEW,PASS),SPACE=(3120,(40,40)),       00012700
//          UNIT=SYSDA,DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)             00012800
//FT02F001 DD DSN=#SYSPREF.#FILU2,DISP=SHR                              00012900
//FT08F001 DD DSN=CN.EPADYN.S2KC.NLDICT,DISP=SHR                        00012930
//FT03F001 DD DSN=CN.EPADYN.S2KC.WYLIB(MILE),DISP=SHR                   00012940
//          DD DSN=CN.EPADYN.S2KC.WYLIB(PERCNT),DISP=SHR                00013000
//          DD DSN=CN.EPADYN.S2KC.WYLIB(FIMP),DISP=SHR                  00013050
//          DD DSN=CN.EPADYN.S2KC.WYLIB(FLOMIX08),DISP=SHR              00013100
//FT04F001 DD *                                                         00013150
IPLOT     :2222222                                                      00013200
IPRINT    :111100000000                                                 00013300
IDUMP     :000000000000                                                 00013400
KMASK     :111111                                                       00013500
IVMASK    :000000000000000                                              00013600
ICONT     :000000000000                                                 00013700
JMASK     :111111111                                                    00013800
METMSK    :1111001                                                      00013810
MODMSK    :111                                                          00013820
IBEG      :5575005                                                      00013830
VPD74-1   :0.4673 0.1420 0.0167 0.0618 0.1603 0.1514 0.0005             00013840
VBD74-2   :0.6146 1.3254 1.0000 1.0000 1.0000 0.8800 0.1200             00013900
VBD77     :0.4390 0.1324 0.0176 0.3600 0.1400 0.2100 0.0010             00014000
VPD85     :0.0700 0.1853 0.0247 0.2300 0.1500 0.1300 0.2100             00014100
                                                                        00014200
NYRN      :09                                                           00014210
MYRNET-1  :1974,1979,1984,1989,1994,1999,2004,2009,2013,1983,      *    00014300
RNAME     :*#RUNNAME:#DATE*                                             00014400
   :  1.0000E+00 1.4610E+00 2.1345E+00 3.1185E+00 4.5562E+00 6.6565E+00  *   00014720
   :  3.3866E+01 9.6692E+01 2.7601E+02 7.0799E+02 2.2496E+03 6.4222E+0300014722
                                                                       00014724
```

Figure B-1. Listing of JCL File RNMEXE9R

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```
$  1.6335E+04 5.2343E+04 1.4943E+05 4.2660E+05 1.2179E+06 3.4764E+0600014726
$  1.0000E+00 1.6419E+00 2.6957E+00 4.4260E+00 7.2669E+00 3.2152E+0100014728
$  8.2766E+01 2.1307E+02 5.4851E+02 1.4120E+03 3.6350E+03 9.3576E+0300014730
$  2.4089E+04 6.2014E+04 1.5964E+05 4.1097E+05 1.0580E+06 2.7235E+0600014732
$  1.0000E+00 2.1009E+00 4.4139E+00 9.2732E+00 1.9482E+01 4.0931E+0100014734
$  8.5992E+01 1.8066E+02 3.7956E+02 7.9743E+02 1.6753E+03 3.5197E+0300014736
$  7.3947E+03 1.5536E+04 3.2639E+04 6.8573E+04 1.4407E+05 3.0267E+0500014738
$  1.0000E+00 1.3300E+00 1.7690E+00 2.3528E+00 3.1293E+00 4.1621E+0000014740
$  6.3158E+00 1.0935E+01 1.8932E+01 3.2777E+01 5.6748E+01 9.8250E+0100014742
$  1.7010E+02 2.9450E+02 5.0988E+02 8.8278E+02 1.5284E+03 2.6461E+0300014744
$  1.0000E+00 1.4142E+00 2.0000E+00 2.8284E+00 4.0000E+00 6.7225E+0000014746
$  1.1298E+01 1.8986E+01 3.1912E+01 5.3633E+01 9.0137E+01 1.5149E+0200014748
$  2.5460E+02 4.2788E+02 7.1911E+02 1.2086E+03 2.0312E+03 3.4137E+0300014750
$  1.0000E+00 1.5704E+00 2.4662E+00 3.8730E+00 6.0822E+00 9.5516E+0000014752
$  1.5000E+01 2.3556E+01 3.6993E+01 5.8095E+01 9.1233E+01 1.4327E+0200014754
$  2.2500E+02 3.5335E+02 5.5490E+02 8.7143E+02 1.3685E+03 2.1491E+0300014756
                                                                        00014800
**********************************************************************  00014900
*********************************************************************** 00015000
*       ENVIRONMENTAL PROTECTION AGENCY OF THE UNITED STATES          * 00015100
*                OFFICE OF NOISE ABATEMENT AND CONTROL                * 00015200
*                                                                     * 00015300
*             NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL           * 00015400
*                         SINGLE EVENT MODEL                          * 00015500
*                                                                       00015600
*                                                                     * 00015700
*                                                                     * 00015800
*                                                                     * 00016100
*********************************************************************** 00016300
*********************************************************************** 00016400
*                         DATE OF RUN $ #DATE                         * 00016500
*                  NAME OF PROGRAMMER $ #MANNAME                        00016600
*                         NAME OF RUN $ #RUNNAME                        00016650
*                        NAME OF PLOT $ #PLOTNAME                       00016700
*         REGULATION INSTRUCTION FILE $ #SYSPREF.#FILU2                 00016750
*                  NAME OF DATAFILE 3 $ CN.EPADYN.S2KC.WYLIB(MILE)      00016760
*                                     $ CN.EPADYN.S2KC.WYLIB(PERCNT)    00016800
*                                     $ CN.EPADYN.S2KC.WYLIB(FIMP)      00016810
*                                     $ CN.EPADYN.S2KC.WYLIB(FLOMIX08)  00016820
*          VEHICLE GROWTH FACTOR FILE $ #SYSPREF.WYLIB(#REG3CN1)        00016830
*                                                                       00016850
*********************************************************************** 00017100
*********************************************************************** 00017200
*                            COMMENTS                                   00017300
*                                                                     * 00017400
*                                                                     * 00017500
*                                                                     * 00017600
*                                                                     * 00017700
*                                                                     * 00017800
*                                                                     * 00017900
*                                                                     * 00016000
*********************************************************************** 00018100
*********************************************************************** 00018200
//PLKED EXEC PGM=IEWL,REGION=150K                                       00018310
//SYSLIB DD DSN=SYS1.FTN2LIB,DISP=SHR                                   00018320
//             DD DSN=SYS1.FORTLIB,DISP=SHR                             00018321
//       DD DSN=SYS2.IPP.LOAD,DISP=SHR                                  00018322
//SYSPRINT DD SYSOUT=A                                                  00018330
//SYSLMOD  DD  DSN=&GOSET(MAIN),DISP=(,PASS),UNIT=SYSDA,                00018340
//             SPACE=(TRK,(10,10,1),RLSE)                               00018350
//SYSUT1   DD  UNIT=SYSDA,SPACE=(TRK,(10,10),RLSE)                      00018360
```

Figure B-1 (Continued)

Table B-1

The IPLOT Mask: GAR Graphs

GAR Graphs if IPLOT(1)=1
Population
Population Exposed
Percentage of Population Exposed
Level-weighted Population
Noise Impact Index
Change in Level-weighted Population
Relative Change in Level-weighted Population

Table B-2

IPRINT Control String Digit Definitions for GAR Runs

Table Number	Contents of GAR Tables
1	The runs's title page
2	Elected control strings and suppressed roadway/vehicle types
3	Constant data: o Mileage of roadway o Population by area, density type o Population density
4	Vehicle sound level scenario
5	The vehicle populations for each net year
6	Primary impact metrics for each net year
7	Impact metrics by area type
8	Impact metrics by roadway type
9	Impact metrics in dB bands
10	Population growth factor for each year
11	The vehicle mix breakdown ratios for each model year for vehicle types 1 through 7
12	Reserved

Table B-3

IPRINT Control String Digit Definitions for SEM Runs*

Digit Position	Contents of SEM Tables
1	The run's title page.
2	Elected control strings, and suppressed roadway/vehicle types.
3	Constant data: o Mileage of roadway o Population by area, density type o Population density
4	Vehicle sound level scenario.
5	The vehicle populations for each net year.
6	An impact metric sorted into dB bins, one line per net year, one table per metric.
7	An impact metric sorted into dB bins and event bins; one table per "net year and metric" combination.
8	Reserved
9	Reserved
10	A table of the population growth factors, one line per net year.
11	The vehicle mix breakdown ratios for each year of the 40 year time stream.
12	Reserved

*IPRINT does not control the main SEM output tables. These depend on the settings of the METMSK control string (Table B-9).

Table B-4

The KMASK Control String: Roadway Types

Functional Roadway Classification	KMASK Position
Interstate highways	1
Freeways and Expressways	2
Major Arterials	3
Minor Arterials	4
Collector Streets	5
Local Roads and Streets	6

Table B-5

The IVMASK Control String: Classification of Vehicle Types Used by the National Roadway Traffic Noise Exposure Model

IVMASK Position	Vehicle Type	Engineering Characteristics
1	Passenger Car	8-cyl. Gasoline Engine, Automatic Transmission
2	Passenger Car	6-cyl. Gasoline Engine, Automatic Transmission
3	Passenger Car	6- & 8-cyl. Gasoline Engine, Manual Transmission
4	Passenger Car and Light Truck	4-cyl. Gasoline Engine, Automatic Transmission
5	Passenger Car and Light Truck	4-cyl. Gasoline Engine, Manual Transmission
6	Light Truck	6- & 8-cyl. Gasoline Engine
7	Passenger Car and Light Truck	Diesel Engine
8	Medium Truck	Two Axle (GVWR >10,000 lb)
9	Heavy Truck	Three or More Axles (GVWR > 26,000 lb)
10	Intercity Buses	
11	Transit Buses	
12	School Buses	
13	Unmodified Motorcycles	
14	Modified Motorcycles	

Table B-6

ICONT Control String Digit Definitions for GAR Runs

Digit Position	Digit Value	Digit Definition
1	0	No effect on processing.
	1	The noise impact computations are bypassed. Only the vehicle population and associated values are computed.
2	0	No effect on processing.
	1	The secondary exposure computations are bypassed. Only the primary exposures are computed.
3	0	Sets ALEVEL(K,L)=0 if KMASK(K)=0, effectively ignoring roadway K as a noise source.
	1	Effectively ignores the population associated with roadway K if KMASK(K)=0.
4	0	Vehicle types 1 and 3 will be phased out after 1990 model year.
	1	Vehicle types 1 and 3 will not be phased out after 1990 model year.

Digits 5 through 12, inclusive, are reserved for future use and presently have no significance other than as position holders.

Table B-7

ICONT Control String Digit Definitions for SEM Runs

Digit Position	Digit Value	Digit Definitions
1	0	No effect on processing.
	1	The noise impact computations are bypassed. Only the vehicle population and associated values are computed.
2	0	No effect on processing.
	1	Only the primary exposures are computed. The secondary exposure computations are bypassed.
	2	Only the secondary exposures are computed. The primary exposure computations are bypassed.
4	0	Vehicle types 1 and 3 will be phased out after 1990 model year.
	1	Vehicle types 1 and 3 will not be phased out after 1990 model year.
7	0	No effect on processing.
	1	An alternative logic scheme is used to compute the ALO for pedestrian speech interference.
9	0	No effect on processing.
	1	Prints program section numbers to facilitate debugging.
10	0	No effect on processing.
	1	A control run using normalization method 1: generates one passby event per roadway section.
	2	A control run using normalization method 2: generates one passby event.

Digits 3, 5, 6, 8, 11 and 12 are reserved for future use and presently have no significance other than as position holders.

Table B-8

The JMASK Control String: Area Types

Area Type	JMASK Position
Population over 2 million	1
Population from 1 million to 2 million	2
Population from 500 thousand to 1 million	3
Population from 200 thousand to 500 thousand	4
Population from 100 thousand to 200 thousand	5
Population from 50 thousand to 100 thousand	6
Population from 25 thousand to 50 thousand	7
Population from 5 thousand to 25 thousand	8
Rural Population	9

Table B-9

The METMSK Control String: Metrics Available Through SEM

SEM Metrics	METMSK Position
Sleep Disruption	1
Sleep Awakening	2
Indoor Speech Interference	3
Outdoor Speech Interference	4
SEL	5
LEQ	6
Pedestrian Speech Interference	7

Table B-10

The MODMSK Control String: Vehicle Operating Modes

Vehicle Operating Mode	MODMSK Position
Acceleration	1
Deceleration	2
Cruise	3

Table B-11

The IBEG Control String: SEM dB Bin Table Ranges

SEM dB Bin Table Ranges (Default Configuration :5575005)	IBEG Position
Sleep disruption - bins 6 through 15, which covers 105 through 55 dB	1
Sleep awakening - bins 6 through 15, which covers 105 through 55 dB	2
Indoor speech interference - bins 8 through 17, which covers 95 through 45 dB	3
Outdoor speech interference - bins 6 through 15, which covers 105 through 55 dB	4
This digit position is not used by the Model	5
This digit position is not used by the Model	6
Pedestrian speech interference - bins 6 through 15, which covers 105 through 55 dB	7

APPENDIX C

The Vehicle Growth Factor File

The Vehicle Growth Factor File (VGF) is part of the input data required during an NRTNEM run and is supplied by the user as a member in his WYLBUR library (WYLIB). The master VGF is shown in Figure C-1. The file is divided into three distinct sections:

- o Vehicle growth factors proper: lines 2 through 27.
- o Vehicle population and age data: lines 28 through 46.
- o Vehicle attrition factors: lines 47 through 61.

The file is structured in a FORTRAN NAMELIST format: starting in line 1 with the NAMELIST name (&VEHGF1) and ending in line 62 with &END. Array names are followed by an equal sign and their associated data, each data item followed by a comma.

During the creation of NRTNEM and this file, it was found that, in many cases, several of the 14 vehicle types could be combined into groups to which the same data apply. Instead of coding the same data for each vehicle type, it is coded only once for a group, and a pointer is used for each vehicle type to point to the applicable group data.

For example, there are six groups in the vehicle growth factor data, each occupying four lines with 10 factors each (i.e., there are 40 factors for each group, corresponding to the 40 years that the NRTNEM analysis covers). Of course, each starts with the value 1 for the baseline year 1974. The sixth group consists of all zeroes as it is not used in the master file but is available to the user to enter his own data without changing the existing data. In line 27 we find the "pointers": One for each of the 14 vehicle types; we see that vehicle types 1 through 9 all use the growth factors of group 1, vehicle type 10 uses group 2; etc. Notice that there is no "6" among the pointers which would only appear if the user defines a group 6 and associates one or more vehicle types with it.

The vehicle population and age data in lines 28 through 46 is historical data and should not be changed by the user.

```
&VEHGF1
 VGF=
  1.000, 1.023, 1.040, 1.061, 1.082, 1.104, 1.126, 1.149, 1.172, 1.195,
  1.219, 1.243, 1.268, 1.294, 1.319, 1.346, 1.373, 1.400, 1.428, 1.457,
  1.486, 1.526, 1.546, 1.577, 1.608, 1.641, 1.673, 1.707, 1.741, 1.776,
  1.811, 1.848, 1.885, 1.922, 1.960, 1.999, 2.040, 2.081, 2.122, 2.165,
  1.000, 1.052, 1.104, 1.156, 1.207, 1.259, 1.311, 1.370, 1.463, 1.482,
  1.541, 1.544, 1.556, 1.615, 1.630, 1.660, 1.696, 1.733, 1.770, 1.807,
  1.844, 1.882, 1.919, 1.956, 1.993, 2.030, 2.067, 2.104, 2.141, 2.178,
  2.215, 2.252, 2.289, 2.326, 2.363, 2.400, 2.437, 2.474, 2.511, 2.548,
  1.000, 1.092, 0.985, 0.506, 0.788, 0.955, 0.976, 0.996, 1.007, 1.017,
  1.038, 1.048, 1.069, 1.079, 1.100, 1.121, 1.131, 1.142, 1.162, 1.178,
  1.183, 1.204, 1.219, 1.235, 1.251, 1.266, 1.282, 1.297, 1.313, 1.328,
  1.344, 1.360, 1.375, 1.391, 1.406, 1.422, 1.437, 1.453, 1.469, 1.484,
  1.000, 1.003, 1.006, 0.975, 1.012, 1.015, 1.025, 1.032, 1.039, 1.049,
  1.059, 1.066, 1.072, 1.083, 1.093, 1.100, 1.106, 1.116, 1.127, 1.133,
  1.140, 1.150, 1.160, 1.167, 1.174, 1.184, 1.192, 1.201, 1.209, 1.218,
  1.226, 1.235, 1.243, 1.252, 1.260, 1.269, 1.277, 1.286, 1.294, 1.302,
  1.0000,0.6921,0.8388,0.8639,0.7250,1.0112,1.1424,1.3177,1.4014,1.4388,
  1.5666,1.7091,1.7860,1.8335,1.8867,1.9240,1.9670,2.0065,2.0464,2.0874,
  2.1291,2.1717,2.2151,2.2594,2.3046,2.3507,2.3997,2.3977,2.3977,2.3977,
  2.3977,2.3977,2.3977,2.3977,2.3977,2.3977,2.3977,2.3977,2.3977,2.3977,
  0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   ,
  0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   ,
  0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   ,
  0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   , 0.0   ,
 IVGF = 1,1,1,1,1,1,1,1,1,2,3,4,5,5,
 REMO=
     2100062.,    370391.,     13905.,     42057.,    184460.,     83436.,
      506559.,     59871.,      1084.,      3319.,     26263.,     20129.,
      883563.,     70227.,      1866.,      4819.,     38376.,     35063.,
     1167286.,     69094.,      2246.,      6706.,     47511.,     46317.,
     2348827.,     97573.,      1479.,     12571.,     58226.,     93308.,
     3656626.,    121684.,         0.,         0.,         0.,    145340.,
     5151096.,    152266.,         0.,         0.,         0.,    204629.,
     7397576.,    185276.,         0.,         0.,         0.,    293871.,
     8461220.,    211814.,         0.,         0.,         0.,    336125.,
     8581706.,    211166.,         0.,         0.,         0.,    340911.,
    10274987.,    229451.,         0.,         0.,         0.,    408177.,
    11161141.,    291911.,         0.,         0.,         0.,    443380.,
    11003084.,    274759.,         0.,         0.,         0.,    437103.,
    11170210.,    281879.,         0.,         0.,         0.,    443740.,
    13145920.,    367705.,         0.,         0.,         0.,    522226.,
    14599524.,    457770.,         0.,         0.,         0.,    579971.,
    13959524.,    447576.,         0.,         0.,         0.,    518315.,
 MYREF = 1958,1958,1970,1970,1970,1958,
 VAF=
      1.000, 1.000, 1.000,0.98   ,    0.9998,1.0000,1.0000,0.96  ,
     0.9990,0.9998,0.9998,0.90   ,    0.9960,0.9927,0.9927,0.75  ,
     0.9877,0.9711,0.9711,0.55   ,    0.9683,0.9329,0.9329,0.37  ,
     0.9507,0.8783,0.8783,0.26   ,    0.8677,0.8089,0.8089,0.17  ,
     0.7756,0.7272,0.7272,0.10   ,-   0.6570,0.6364,0.6364,0.05  ,
     0.5214,0.5402,0.5402,0.02   ,    0.3834,0.4424,0.4424,0.01  ,
     0.2583,0.3469,0.3469,0.00   ,    0.1575,0.2576,0.2576,0.00  ,
     0.0857,0.1780,0.1780,0.00   ,    0.0410,0.1113,0.1113,0.00  ,
     0.0168,0.0598,0.0598,0.00   ,    0.0057,0.0248,0.0248,0.00  ,
      0.0  ,0.0062,0.0062,0.00   ,     0.0  ,0.0013,0.0013,0.00  ,
      0.0  ,0.0013,0.0013,0.00   ,     0.0  ,0.0000, 0.0  ,0.00  ,
      0.0  ,0.0000, 0.0  ,0.00   ,     0.0  ,0.0000, 0.0  ,0.00  ,
      0.0  ,0.0000, 0.0  , 0.0   ,     0.0  ,0.0000, 0.0  , 0.0  ,
 LIFE=14,21,21,12,
 &END
```

Figure C-1. Master Vehicle Growth Factor File CN.EPADYN.S2KC.WYLIB (VGFS001)

The vehicle attrition factors in lines 48 through 60 are arranged in a rather complex format for reasons of storage efficiency and programming ease. The data are arranged into four groups. Unlike the pointers discussed previously in this section, the corresponding pointers (one for each vehicle type pointing to a group) are program internal and not under the user's control as is the case with the growth factors; the pointers are:

Group Number	Vehicle Types in this Group
1	1 through 7
2	8 and 9
3	10, 11 and 12
4	13 and 14

The organization of the "VAF=" data is best understood if you break every line in the middle and imagine the second half of the line exactly under the first half of the line so that four columns of attrition factors are formed which correspond to the four groups of vehicle types. There would then be 26 lines corresponding to the 26-year age limit allowed by the program for any one vehicle type.

The actual maximum age (LIFE) in each of the four groups is given in line 61.

APPENDIX D

Vehicle Mix Breakdown Ratios

The figure below diagrammatically explains the format of the vehicle mix breakdown ratio data contained on lines 13900 through 14200 of RNMEXE9R (see Figure B-1):

Line Number	Variable Designation	VBD Value for Vehicle Type						
		1	2	3	4	5	6	7
13900	VBD74-1	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005
14100	VBD77	0.4390	0.1324	0.0176	0.0600	0.1400	0.2100	0.0010
14200	VBD85	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100
		VBD Value for Vehicle Type						
		8	9	10	11	12	13	14
14000	VBD74-2	0.6146	0.3854	1.000	1.000	1.000	0.8800	0.1200

These VBD values are the proportions of the group populations (array REMO in Figure C-1) comprised by each vehicle type member of a group. The numerals 74, 77 and 85 in the variable designations (e.g., 77 of VBD77) refer to the year in which the proportion initially applies. The REMO group to which a vehicle type is a member is shown in Table D-1.

Table D-1

Vehicle Type Members of Each REMO Group

REMO Group	Vehicle Type Members
1	1-7
2	8 & 9
3	10
4	11
5	12
6	13 & 14

The VBD values for vehicle types 8-14 are constant over the entire 40 year time stream.

Except for ICONT(4)=0 (see Tables B-6 and B-7), the VBD85 values are constant for vehicle types 1-7 from 1985 through 2013. VBD values for years between 1974 through 1977, and between 1977 and 1985, are interpolated between the VBD values for those years for vehicle types 1-7.

The user can change the VBD values used by the Model by changing the VBD values presented here. The user can have no effect upon the years to which the VBD values apply. Attempts to change the years by changing the variable designations will have absolutely no effect at all on the Model, which will still use 1974, 1977 and 1985, regardless.

APPENDIX E

Two Examples

Preamble

In order to shorten typing every time the support system is executed in TSO, the user has established the command procedure NRTNEM.CLIST shown in Figure E-1. He then needs to type only "EXEC NRTNEM" instead of the fully-qualified procedure name.

Example 1 - a Simple GAR Job

In this example, the user wishes to run a simple baseline case, letting all values take on their default values where possible, and leaving all vehicle noise levels at baseline. Figure E-2 shows the regulation instruction file that the user prepared under WYLBUR and named RIFBL. He has also copied the master vehicle growth file from account EPADYN into his WYLIB (see Appendix C) and gave it the same name (VGFS001). The TSO conversation for submitting the job is shown in Figure E-3. The user's input is underlined for clarity; the symbol CR has been added to indicate where the user typed a "carriage return." Figure E-4 shows the output generated.

Example 2 - a Comprehensive SEM Job

Here, the user wishes to explore a rather involved combination of vehicle regulations, but only including trucks (vehicle types 8 and 9) and motorcycles (types 13 and 14). Figure E-5 shows the regulation instruction file called RIFEX2. The vehicle growth file is the same as in Example 1. The TSO conversation is shown in Figure E-6. The user requests all possible output, but only for one metric: sleep disruption. Figure E-7 shows the resulting output.

```
READY
EDIT NRTNEM.CLIST

QED
LIST

00010 EXEC 'CN.EPADYN.S2KC.$RNMSUF.CLIST'
END OF DATA
```

Figure E-1. Command Procedure to Shorten Typing Required

```
? USE RIFBL CLR

? LIST

  1.     Y1957V01RBL
  2.     Y1957V02RBL
  3.     Y1957V03RBL
  4.     Y1957V04RBL
  5.     Y1957V05RBL
  6.     Y1957V06RBL
  7.     Y1957V07RBL
  8.     Y1957V08RBL
  9.     Y1957V09RBL
 10.     Y1957V10RBL
 11.     Y1957V11RBL
 12.     Y1957V12RBL
 13.     Y1957V13RBL
 14.     Y1957V14RBL
```

Figure E-2. Regulation Instruction File for Example 1

```
READY
EXEC NRTNEM

>>>>NATIONAL ROADWAY NOISE MODEL VERSION 9R 09/24/80 12:38:34
S1. VERSION(SEM OR GAR)   :GAR (CR)

S3. ENTER EDITING COMMANDS.
?

S4.5 REGULATION INSTRUCTION FILE:RIFBL (CR)

S5. ENTER VEH.GROWTH F. FILE    :VGFS001 (CR)

S6. ENTER NET-YEARS(MAX 9):'1974,1980,1985,2000,2010' (CR)

S7. ENTER -PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
LIMITS :  -XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.
          : (CR)

END OF DATA
END OF DATA
S8. COMMAND:
? (CR)

SAVED
JOB EPADYONN(JOB02303) SUBMITTED
DELETE SUBMITTED JCL FILE? Y OR N:Y (CR)

ENTRY (A) CN.EPADYO.S2KC.RNMTEMP.CNTL DELETED
READY
```

Figure E-3. TSO Conversation for Submitting Example 1 Job

```
12.44.58 JOB 23038 ICH70001I EPADYO   LAST ACCESS AT 12:17:12 ON 80,268
12.44.58 JOB 23038 RACF4  JOB=EPADYONN, U=EPADYO, G=S2KC, ACEEFLG1=01
12.44.58 JOB 23038 $HASP373 EPADYONN STARTED - INIT 11 - CLASS B                                   24 SEP 80
12.46.45 JOB 23038 IEC130I SYSLIB   DD STATEMENT MISSING
13.29.35 JOB 23038 WCC005I * JOB EPADYONN ENDED 09/24/80 AT 13:29:35, P=2/5/2     CC=0000
13.29.35 JOB 23038 $HASP395 EPADYONN ENDED


 1     //EPADYONN JOB (S2KC,E2CM,,25,,,1,,),EPADYO,                        JOB 2303
       //       TIME=(10,0),NOTIFY=EPADYO,PRTY=2                           00009001
       ***ROUTE PRINT HOLD                                                 00009020
       *** THIS IS FILE RNMEXE9R (1980 SEP 23)                             00009950
       ***       TO BE EDITED BY $RNMSUF.CLIST                             00009951
 2     //LKED    EXEC PGM=IEWL,REGION=192K                                 00009954
 3     //SYSPRINT DD  SYSOUT=A                                             00009956
 4     //SYSLMOD  DD  DSN=&&LOD(V99R),DISP=(,PASS),UNIT=SYSDA,             00009958
       //             SPACE=(CYL,(2,1,2),RLSE),DCB=BUFNO=1                 00009960
 5     //SYSUT1   DD  UNIT=SYSDA,SPACE=(1024,(120,120),,,ROUND),           00009962
       //             DCB=BUFNO=1                                          00009964
 6     //SYSLIB   DD  DSN=SYS1.FTM2LIB,DISP=SHR                            00009966
 7     //         DD  DSN=SYS1.FORTLIB,DISP=SHR                            00009968
 8     //RNMOLIB  DD  DSN=CN.EPADYN.S2KC.BUILD,DISP=SHR                    00009970
 9     //SYSLIN   DD  *                                                    00009972
10     //AUSF  EXEC  PGM=LOADER,PARM='EP=MAIN.TERM',REGION=300K            00010000
11     //SYSLIN DD DSN=*.LKED.SYSLMOD,DISP=(OLD,DELETE,DELETE)             00010020
12     //SYSLOUT DD SYSOUT=A                                               00010040
13     //SYSTERM DD SYSOUT=A                                               00010060
14     //FT05F001 DD DSN=CN.EPADYO.S2KC.WYLIB(VGFS001),DISP=SHR            00012500
15     //FT06F001 DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3155)       00012700
16     //FT01F001 DD DSNAME=&PLINF,DISP=(NEW,PASS),SPACE=(3120,(40,40)),   00012800
       //             UNIT=SYSDA,DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)      00012900
17     //FT02F001 DD DSN=CN.EPADYO.S2KC.RIFBL,DISP=SHR                     00012930
18     //FT08F001 DD DSN=CN.EPADYN.S2KC.NLDICT,DISP=SHR                    00012940
19     //FT03F001 DD DSN=CN.EPADYN.S2KC.WYLIB(MILE),DISP=SHR               00013000
20     //          DD DSN=CN.EPADYN.S2KC.WYLIB(PERCNT),DISP=SHR             00013050
21     //          DD DSN=CN.EPADYN.S2KC.WYLIB(SIGMA0),DISP=SHR             00013100
22     //          DD DSN=CN.EPADYN.S2KC.WYLIB(FLOMIX08),DISP=SHR           00013150
23     //FT04F001 DD *                                                     00013200
```

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Figure E-4. Output for Example 1

```
ICH70001I EPADYU   LAST ACCESS AT 12:17:12 ON 80.268
RACF:  JOB=EPADYONN, U=EPADYU, G=S2KC, ACEEFLG1=01                                        24 SEP 80
$HASP373 STARTED - INIT 11 - CLASS B
IEF236I ALLOC. FOR EPADYONN LKED
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I 233  ALLOCATED TO SYSLMOD
IEF237I 380  ALLOCATED TO SYSUT1
IEF237I 210  ALLOCATED TO SYSLIB
IEF237I 372  ALLOCATED TO
IEF237I 380  ALLOCATED TO RNMULIB
IEF237I 231  ALLOCATED TO SYS00002
IEF237I JES2 ALLOCATED TO SYSLIN
IEF142I EPADYONN LKED - STEP WAS EXECUTED - COND CODE 0000
IEF285I   JES2.JOB02303.SO0103                                 SYSOUT
IEF285I   SYS80268.T124456.RA000.EPADYONN.LOD                  PASSED
IEF285I   VOL SER NOS= WORK58.
IEF285I   SYS80268.T124456.RA000.EPADYONN.R0000001             DELETED
IEF285I   VOL SER NOS= WORK59.
IEF285I   SYS1.FTM2LIB                                         KEPT
IEF285I   VOL SER NOS= APPL01.
IEF285I   SYS1.FORTLIB                                         KEPT
IEF285I   VOL SER NOS= MVSSYS.
IEF285I   CN.EPADYN.S2KC.BUILD                                 KEPT
IEF285I   VOL SER NOS= USER68.
IEF285I   SYSCTLG.VSYSTM1                                      KEPT
IEF285I   VOL SER NOS= SYSTM1.
IEF285I   JES2.JOB02303.SI0101                                 SYSIN
IEF373I STEP /LKED    / START 80268.1244
IEF374I STEP /LKED    / STOP  80268.1246 CPU    0MIN 02.80SEC SRB    0MIN 01.07SEC VIRT   196K SYS   216K
WCC949I ****************** COMNET - SYSTEM GG32 - STEP SUMMARY *****************
WCC949I *                                                                       *
WCC950I * JOB EPADYONN,  STEP LKED:           15.72 CUU             CC: 0000    *
WCC949I *                                                                       *
WCC950I *  START WEDNESDAY 09/24/80 AT 12:44:58       STOP 09/24/80 AT 12:46:37 *
WCC950I *      1:38.71 ELAPSED    0:02.80 TCB    0:01.07 SRB    0:03.87 TOT CPU *
WCC950I *  MEMORY:   8304K VIRTUAL ADDRESS SPACE,   412K USED                   *
WCC950I *  EXCPS:       1770 DA,         0 MT,        0 OTHER,       1770 TOTAL *
WCC949I *                                                                       *
WCC950I *  EXCPS BY UNIT:    000:          0   233:        69   380:        118 *
WCC950I *   813:       183   372:          2   38D:      1398   831:          0 *
WCC950I *   000:         0                                                      *
WCC949I *                                                                       *
WCC950I *  PAGES IN:            0 VIO,           0 SWAP,          74 OTHER     *
WCC950I *  PAGES OUT:           0 VIO,           0 SWAP,          91 OTHER     *
WCC950I *               92 PAGE SECONDS                  91.15 RESIDENT SECONDS *
WCC950I *            14478 SERVICE UNITS                                        *
WCC950I *  CUU COST FOR STEP LKED     AT PRIORITY 2/5/2:                  $2.20 *
WCC950I *   MOUNT CHARGES:       0 DISK,      0 TAPE:                     $0.00 *
WCC950I *  TOTAL COST FOR STEP LKED     OF JOB EPADYONN:                  $2.20 *
WCC949I *                                                                       *
WCC949I *************************************************************************
IEF236I ALLOC. FOR EPADYONN AUSF
IEF237I 233  ALLOCATED TO SYSLIN
IEF237I JES2 ALLOCATED TO SYSLOUT
IEF237I JES2 ALLOCATED TO SYSTERM
IEF237I 35F  ALLOCATED TO FT05F001
IEF237I 231  ALLOCATED TO SYS00004
IEF237I JES2 ALLOCATED TO FT06F001
IEF237I 222  ALLOCATED TO FT01F001
IEF237I 363  ALLOCATED TO FT02F001
IEF237I 23A  ALLOCATED TO FT08F001
```

Figure E-4 (Continued)

```
IEF237I 368  ALLOCATED TO FT03F001
IEF237I 368  ALLOCATED TO
IEF237I 368  ALLOCATED TO
IEF237I 368  ALLOCATED TO
IEF237I JES2 ALLOCATED TO FT04F001
IEC130I SYSLIB   DD STATEMENT MISSING
IEF142I EPADYUNN AUSF - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS80268.T124456.RA000.EPADYUNN.LOD                DELETED
IEF285I   VOL SER NOS= WORK58.
IEF285I   JES2.JOB02303.S00104                               SYSOUT
IEF285I   JES2.JOB02303.S00105                               SYSOUT
IEF285I   CN.EPADYU.S2KC.WYLIB                               KEPT
IEF285I   VOL SER NOS= USER67.
IEF285I   SYSCTLG.VSYSTM1                                    KEPT
IEF285I   VOL SER NOS= SYSTM1.
IEF285I   JES2.JOB02303.S00106                               SYSOUT
IEF285I   SYS80268.T124456.RA000.EPADYUNN.PLINF              PASSED
IEF285I   VOL SER NOS= WORK60.
IEF285I   CN.EPADYU.S2KC.HIFBL                               KEPT
IEF285I   VOL SER NOS= USER74.
IEF285I   CN.EPADYN.S2KC.NLDICT                              KEPT
IEF285I   VOL SER NOS= USER76.
IEF285I   CN.EPADYN.S2KC.WYLIB                               KEPT
IEF285I   VOL SER NOS= USER69.
IEF285I   CN.EPADYN.S2KC.WYLIB                               KEPT
IEF285I   VOL SER NOS= USER69.
IEF285I   CN.EPADYN.S2KC.WYLIB                               KEPT
IEF285I   VOL SER NOS= USER69.
IEF285I   CN.EPADYN.S2KC.WYLIB                               KEPT
IEF285I   VOL SER NOS= USER69.
IEF285I   JES2.JOB02303.S10102                               SYSIN
IEF373I STEP /AUSF    / START 80268.1246
IEF374I STEP /AUSF    / STOP  80268.1329 CPU    2MIN 06.27SEC SRB    0MIN 00.31SEC VIRT   300K SYS   228K
WCC949I ******************* COMNET - SYSTEM GG32 - STEP SUMMARY *****************
WCC949I *                                                                               *
WCC950I * JOB EPADYUNN,  STEP AUSF:          265.01 CUU               CC: 0000          *
WCC949I *                                                                               *
WCC950I *  START WEDNESDAY 09/24/80 AT 12:46:37       STOP 09/24/80 AT 13:29:34          *
WCC950I *     42156.68 ELAPSED    2:06.27 TCB    0:00.31 SRB    2:06.58 TOT CPU          *
WCC950I *  MEMORY:   8304K VIRTUAL ADDRESS SPACE,    528K USED                          *
WCC950I *  EXCPS:          96 DA,          0 MT,         0 OTHER,        96 TOTAL       *
WCC949I *                                                                               *
WCC950I *  EXCPS BY UNIT:     233:      67    000:          0    000:          0        *
WCC950I *   35F:          2   231:       0    000:          0    222:          0        *
WCC950I *   363:          2   83A:      12    368:          6    368:          2        *
WCC950I *   368:          2   368:       3    000:          0                         *
WCC949I *                                                                               *
WCC950I *  PAGES IN:             0 VIO,        164 SWAP,        254 OTHER               *
WCC950I *  PAGES OUT:            0 VIO,        150 SWAP,        102 OTHER               *
WCC950I *             3100 PAGE SECONDS             1971.13 RESIDENT SECONDS            *
WCC950I *           242920 SERVICE UNITS                                                *
WCC950I *  CUU COST FOR STEP AUSF      AT PRIORITY 2/5/2:                $37.10         *
WCC950I *   MOUNT CHARGES:       0 DISK,      0 TAPE:                     $0.00         *
WCC950I *  TOTAL COST FOR STEP AUSF     OF JOB EPADYUNN:                 $37.10         *
WCC949I *                                                                               *
WCC949I *********************************************************************************
IEF237I 222  ALLOCATED TO SYS00001
IEF285I   SYS80268.T132934.RA000.EPADYUNN.R0000001     KEPT
IEF285I   VOL SER NOS= WORK60.
IEF285I   SYS80268.T124456.RA000.EPADYUNN.PLINF        DELETED
IEF285I   VOL SER NOS= WORK60.
```

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Figure E-4 (Continued)

```
IEF375I  JOB /EPADYONN/ START 80268.1244
IEF376I  JOB /EPADYONN/ STOP  80268.1329 CPU    2MIN 09.07SEC SRB    0MIN 01.38SEC
HCC949I ****************** CUMNET - SYSTEM GG32 - JOB SUMMARY ******************
HCC949I *                                                                       *
HCC951I * JOB EPADYONN,   2 STEPS        280.73 TOTAL CUU          CC:  0000    *
HCC949I *                                                                       *
HCC951I *  SUBMIT WEDNESDAY 09/24/80 AT 12:44:52           0:00:05.99 ON QUEUE *
HCC951I *  START 09/24/80 AT 12:44:58                   STOP 09/24/80 AT 13:29:35 *
HCC951I *    44:36.75 ELAPSED    2:09.07 TCB    0:01.38 SRB    2:10.45 TOT CPU *
HCC949I *                                                                       *
HCC951I *  PRIORITY REQ/RCD/CHD:  2/5/2                                         *
HCC951I *  TOTAL CUU CHARGE FOR JOB EPADYONN:                           $39.30  *
HCC951I *   MOUNT CHARGES:      0 DISK,      0 TAPE:                     $0.00  *
HCC951I *  TOTAL COST FOR JOB EPADYONN, ACCOUNT S2KC:                   $39.30  *
HCC949I *                                                                       *
HCC949I *************************************************************************


 F64-LEVEL LINKAGE EDITOR OPTIONS SPECIFIED   NONE
          DEFAULT OPTION(S) USED -  SIZE=(196608,65536)
****V39H       DOES NOT EXIST BUT HAS BEEN ADDED TO DATA SET
AUTHORIZATION CODE IS          0.


                                                          VS LOADER

OPTIONS USED - PRINT,NOMAP,NOLET,CALL,RES,TERM,SIZE=274432,NAME=**GO
               EP=MAIN

  TOTAL LENGTH    1C028
  ENTRY ADDRESS   9C010
```

```
**************************************************************
*                                                            *
*     ENVIRONMENTAL PROTECTION AGENCY OF THE UNITED STATES   *
*            OFFICE OF NOISE ABATEMENT AND CONTROL           *
*                              -                             *
*         NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL      *
*               GENERAL ADVERSE RESPONSE MODEL               *
*                                                            *
*                                                            *
*                                                            *
*                                                            *
**************************************************************
*                                                            *
*                  DATE OF RUN : 09/24/80                    *
*           NAME OF PROGRAMMER : EPADYO                      *
*                  NAME OF RUN : RNMRUN                      *
*   REGULATION INSTRUCTION FILE : CN.EPADYO.S2KC.RIFBL       *
*           NAME OF DATAFILE 3 : CN.EPADYN.S2KC.WYLIB(MILE)  *
*                              : CN.EPADYN.S2KC.WYLIB(PERCNT) *
*                              : CN.EPADYN.S2KC.WYLIB(FIMP)  *
*                              : CN.EPADYN.S2KC.WYLIB(FLOMIX08) *
*    VEHICLE GROWTH FACTOR FILE : CN.EPADYO.S2KC.WYLIB(VGFS001) *
*                                                            *
**************************************************************
*                          COMMENTS                          *
*                                                            *
*                                                            *
*                                                            *
*                                                            *
*                                                            *
*                                                            *
*                                                            *
**************************************************************


   TABLE  1  LISTING OF CONTROL STRINGS AND NET YEARS                                  *RNMRUN:09/24/80*

   DUMP CONTROL STRING IS 000000000000

   PRINT CONTROL STRING IS 111111111111

ICONT LOGIC CONTROL STRING IS 000100000000

   THERE ARE  5 NET YEARS:
   1974,1980,1985,2000,2010,
```

Figure E-4 (Continued)

TABLE 2. 1 BASELINE POPULATION DENSITY BY AREA AND DENSITY TYPE *RNMRUN:09/24/80*

		AREA TYPE,J									
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
ID	VARIABLE	POPULATION DENSITY,IN THOUSANDS PER SQ.MI.									
1		41.83	7.72	5.67	7.47	4.16	3.24	8.05	8.41	0.02	
2		6.24	5.26	4.17	2.29	2.25	1.90	3.33	3.94	0.0	
3		2.58	2.19	1.90	1.17	1.30	1.08	1.57	1.87	0.0	
4		0.0	1.31	1.16	0.0	0.0	0.0	0.69	0.46	0.0	

Figure E-4 (Continued)

TABLE 2. 2 BASELINE POPULATION BY AREA AND DENSITY TYPE *RVMRUN109/24/80*

		AREA TYPE,J									
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
ID	VARIABLE	POPULATION, MILLIONS									TOTAL
1		5.61	2.10	0.36	1.61	1.16	1.07	0.47	1.85	64.18	78.41
2		22.28	4.08	2.04	10.43	2.93	2.12	2.98	4.97	0.0	51.83
3		21.59	11.13	8.40	6.75	6.84	4.53	3.51	8.46	0.0	71.20
4		0.0	5.35	5.30	0.0	0.0	0.0	1.92	2.70	0.0	15.27
	TOTAL	49.48	22.66	16.09	18.78	10.93	7.71	8.88	17.98	64.18	216.70

Figure E-4 (Continued)

TABLE 3 MILEAGE OF ROADWAY, BY AREA AND ROADWAY TYPE

RNMRUN:09/24/80

		AREA TYPE,J									
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
K		MILES OF ROADWAY									
1		1998	1869	1477	1743	854	512	397	899	31744	41493
2		1749	1527	739	1076	803	600	447	1009	85716	93666
3		9861	5156	4034	5566	3851	3335	4282	9652	155547	201284
4		14103	10219	6320	8569	5502	4445	5377	12124	435517	502176
5		12854	10308	7190	7897	5714	4534	5828	13130	307917	375372
6		84247	64678	47466	58252	36697	29284	33454	75431	1942733	2372242
	TOTAL	124812	93757	67226	83103	53421	42710	49785	112245	2959174	3586233

Figure E-4 (Continued)

```
    REGULATION INSTRUCTION FILE:

INSTRUCTION ON UNIT 2: Y1957V01RBL
INSTRUCTION ON UNIT 2: Y1957V02RBL
INSTRUCTION ON UNIT 2: Y1957V03RBL
INSTRUCTION ON UNIT 2: Y1957V04RBL
INSTRUCTION ON UNIT 2: Y1957V05RBL
INSTRUCTION ON UNIT 2: Y1957V06RBL
INSTRUCTION ON UNIT 2: Y1957V07RBL
INSTRUCTION ON UNIT 2: Y1957V08RBL
INSTRUCTION ON UNIT 2: Y1957V09RBL
INSTRUCTION ON UNIT 2: Y1957V10RBL
INSTRUCTION ON UNIT 2: Y1957V11RBL
INSTRUCTION ON UNIT 2: Y1957V12RBL
INSTRUCTION ON UNIT 2: Y1957V13RBL
INSTRUCTION ON UNIT 2: Y1957V14RBL
```

Figure E-4 (Continued)

TABLE 4. 1 NOISE EMISSION LEVELS, IN DBA

RNMRUN:09/24/80

TYPE 1

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH	59.60				
0-30	61.50				
0-40	63.10				
0-50	64.90				
0-60	66.80				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	50.50				
30-0	56.10				
40-0	60.10				
50-0	63.20				
60-0	65.80				
CRUISE MODE					
YEARS>	1974				
<25 MPH	59.80				
25-34	62.40				
35-44	66.40				
45-54	69.50				
>55	72.00				
IDLE MODE					
YEARS>	1974				
	46.00				

TYPE 2

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH	60.80				
0-30	62.50				
0-40	63.90				
0-50	65.50				
0-60	67.10				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	50.50				
30-0	56.10				
40-0	60.10				
50-0	63.20				
60-0	65.80				
CRUISE MODE					
YEARS>	1974				
<25 MPH	59.80				
25-34	62.40				
35-44	66.40				
45-54	69.50				
>55	72.00				
IDLE MODE					
YEARS>	1974				
	46.00				

Figure E-4 (Continued)

TABLE 4. 2 NOISE EMISSION LEVELS, IN DBA *RNMRUN:09/24/80*

TYPE 3

ACCELERATION MODE

YEARS>	1974				
0-20 MPH	60.30				
0-30	62.50				
0-40	64.00				
0-50	65.60				
0-60	67.20				

DECELERATION MODE

YEARS>	1974				
20-0 MPH	50.50				
30-0	56.10				
40-0	60.10				
50-0	63.20				
60-0	65.80				

CRUISE MODE

YEARS>	1974				
<25 MPH	59.80				
25-34	62.40				
35-44	66.40				
45-54	69.50				
>55	72.00				

IDLE MODE

YEARS>	1974				
	46.00				

TYPE 4

ACCELERATION MODE

YEARS>	1974				
0-20 MPH	62.90				
0-30	64.30				
0-40	65.40				
0-50	66.60				
0-60	68.00				

DECELERATION MODE

YEARS>	1974				
20-0 MPH	50.50				
30-0	56.10				
40-0	60.10				
50-0	63.20				
60-0	65.80				

CRUISE MODE

YEARS>	1974				
<25 MPH	59.80				
25-34	62.40				
35-44	66.40				
45-54	69.50				
>55	72.00				

IDLE MODE

YEARS>	1974				
	46.00				

Figure E-4 (Continued)

TABLE 4. 3 NOISE EMISSION LEVELS, IN DBA *RNMRUN:09/24/80*

TYPE 5

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH 0-30 0-40 0-50 0-60	62.60 64.60 65.90 67.30 68.70				

DECELERATION MODE					
YEARS>	1974				
20-0 MPH 30-0 40-0 50-0 60-0	51.70 57.30 61.30 64.40 67.00				

CRUISE MODE					
YEARS>	1974				
<25 MPH 25-34 35-44 45-54 >55	61.00 63.60 67.60 70.70 73.20				

IDLE MODE					
YEARS>	1974				
	46.00				

TYPE 6

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH 0-30 0-40 0-50 0-60	63.30 65.10 66.50 68.20 69.90				

DECELERATION MODE					
YEARS>	1974				
20-0 MPH 30-0 40-0 50-0 60-0	53.40 59.00 63.00 66.10 68.70				

CRUISE MODE					
YEARS>	1974				
<25 MPH 25-34 35-44 45-54 >55	62.70 65.30 69.30 72.40 74.90				

IDLE MODE					
YEARS>	1974				
	46.00				

Figure E-4 (Continued)

TABLE 4. 4 NOISE EMISSION LEVELS, IN DBA

TYPE 7

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH	65.30				
0-30	66.70				
0-40	67.50				
0-50	68.40				
0-60	69.40				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	52.30				
30-0	57.90				
40-0	61.90				
50-0	65.00				
60-0	67.60				
CRUISE MODE					
YEARS>	1974				
<25 MPH	61.60				
25-34	64.20				
35-44	68.20				
45-54	71.30				
>55	73.80				
IDLE MODE					
YEARS>	1974				
	46.00				

TYPE 8

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH.	75.10				
0-30	75.60				
0-40	76.20				
0-50	76.80				
0-60	77.70				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	65.80				
30-0	70.00				
40-0	73.00				
50-0	75.10				
60-0	76.80				
CRUISE MODE					
YEARS>	1974				
<25 MPH	77.20				
25-34	77.20				
35-44	78.10				
45-54	80.20				
>55	81.70				
IDLE MODE					
YEARS>	1974				
	54.00				

Figure E-4 (Continued)

TABLE 4.5 NOISE EMISSION LEVELS, IN DBA *RNMRUN:09/24/80*

TYPE 9

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH	82.70				
0-30	82.80				
0-40	83.00				
0-50	83.40				
0-60	84.00				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	73.90				
30-0	77.30				
40-0	79.60				
50-0	81.40				
60-0	82.70				
CRUISE MODE					
YEARS>	1974				
<25 MPH	83.60				
25-34	83.40				
35-44	84.20				
45-54	85.70				
>55	86.80				
IDLE MODE					
YEARS>	1974				
	63.00				

TYPE 10

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH	81.60				
0-30	82.00				
0-40	82.30				
0-50	82.60				
0-60	82.80				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	68.10				
30-0	71.40				
40-0	73.80				
50-0	75.60				
60-0	77.10				
CRUISE MODE					
YEARS>	1974				
<25 MPH	76.00				
25-34	76.00				
35-44	78.40				
45-54	80.20				
>55	81.70				
IDLE MODE					
YEARS>	1974				
	62.00				

Figure E-4 (Continued)

```
TABLE  4. 6  NOISE EMISSION LEVELS, IN DBA                                    *RNMRUN109/24/80*

              TYPE 11                                                          TYPE 12

------------------------------------------------------------     ------------------------------------------------------------
I                 ACCELERATION     MODE                    I     I                 ACCELERATION     MODE                    I
------------------------------------------------------------     ------------------------------------------------------------
I YEARS>   I  1974   I         I         I         I        I     IYEARS>    I  1974   I         I         I         I        I
------------------------------------------------------------     ------------------------------------------------------------
I 0-20 MPH I   81.00 I         I         I         I        I     I 0-20 MPH I   77.60 I         I         I         I        I
I  0-30    I   81.00 I         I         I         I        I     I  0-30    I   78.10 I         I         I         I        I
I  0-40    I   81.10 I         I         I         I        I     I  0-40    I   78.40 I         I         I         I        I
I  0-50    I   81.20 I         I         I         I        I     I  0-50    I   78.90 I         I         I         I        I
I  0-60    I   81.50 I         I         I         I        I     I  0-60    I   79.40 I         I         I         I        I
------------------------------------------------------------     ------------------------------------------------------------
I                 DECELERATION     MODE                    I     I                 DECELERATION     MODE                    I
------------------------------------------------------------     ------------------------------------------------------------
I YEARS>   I  1974   I         I         I         I        I     IYEARS>    I  1974   I         I         I         I        I
------------------------------------------------------------     ------------------------------------------------------------
I 20-0 MPH I   63.70 I         I         I         I        I     I 20-0 MPH I   63.70 I         I         I         I        I
I  30-0    I   67.80 I         I         I         I        I     I  30-0    I   67.80 I         I         I         I        I
I  40-0    I   70.60 I         I         I         I        I     I  40-0    I   70.60 I         I         I         I        I
I  50-0    I   72.90 I         I         I         I        I     I  50-0    I   72.90 I         I         I         I        I
I  60-0    I   74.70 I         I         I         I        I     I  60-0    I   74.70 I         I         I         I        I
------------------------------------------------------------     ------------------------------------------------------------
I                      CRUISE   MODE                       I     I                      CRUISE   MODE                       I
------------------------------------------------------------     ------------------------------------------------------------
I YEARS>   I  1974   I         I         I         I        I     IYEARS>    I  1974   I         I         I         I        I
------------------------------------------------------------     ------------------------------------------------------------
I  <25 MPH I   73.00 I         I         I         I        I     I  <25 MPH I   73.00 I         I         I         I        I
I  25-34   I   73.00 I         I         I         I        I     I  25-34   I   73.00 I         I         I         I        I
I  35-44   I   75.80 I         I         I         I        I     I  35-44   I   75.80 I         I         I         I        I
I  45-54   I   78.10 I         I         I         I        I     I  45-54   I   78.10 I         I         I         I        I
I   >55    I   79.90 I         I         I         I        I     I   >55    I   79.90 I         I         I         I        I
------------------------------------------------------------     ------------------------------------------------------------
I                        IDLE   MODE                       I     I                        IDLE   MODE                       I
------------------------------------------------------------     ------------------------------------------------------------
I YEARS>   I  1974   I         I         I         I        I     IYEARS>    I  1974   I         I         I         I        I
------------------------------------------------------------     ------------------------------------------------------------
I          I   58.00 I         I         I         I        I     I          I   58.00 I         I         I         I        I
------------------------------------------------------------     ------------------------------------------------------------
```

Figure E-4 (Continued)

TABLE 4. 7 NOISE EMISSION LEVELS, IN DBA *RNMRUN109/24

TYPE 13

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH	72.30				
0-30	73.90				
0-40	74.40				
0-50	74.70				
0-60	74.90				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	61.50				
30-0	65.90				
40-0	69.00				
50-0	71.40				
60-0	73.40				
CRUISE MODE					
YEARS>	1974				
<25 MPH	66.90				
25-34	71.30				
35-44	74.40				
45-54	76.90				
>55	78.90				
IDLE MODE					
YEARS>	1974				
	58.90				

TYPE 14

ACCELERATION MODE					
YEARS>	1974				
0-20 MPH	67.50				
0-30	89.10				
0-40	69.60				
0-50	69.90				
0-60	90.10				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	75.70				
30-0	80.10				
40-0	83.20				
50-0	85.60				
60-0	87.60				
CRUISE MODE					
YEARS>	1974				
<25 MPH	81.10				
25-34	85.50				
35-44	88.60				
45-54	91.10				
>55	93.10				
IDLE MODE					
YEARS>	1974				
	72.00				

Figure E-4 (Continued)

TABLE 5 VEHICLE POPULATION BY TYPE. BUS NUMBERS ARE IN HUNDREDS OF THOUSANDS. *RNMRUN:09/24/80*

TYPE>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	ALL TYPES
CYLINDERS	8	6	6&8	4	4	6&8									
ENGINE	GAS	GAS	GAS	GAS	GAS	GAS	DIESEL								
TRANS-MISSION	AUTO-MATIC	AUTO-MATIC	MAN-UAL	AUTO-MATIC	MAN-UAL	----	----	----	----	----	----	----	----	----	
VEH. TYPE>	PC	PC	PC	PC&LT	PC&LT	LT TRK	PC&LT	MED TRK	HVY TRK	IC BUS	TR BUS	SCH BUS	UN MTCY	MD MILY	
UNIT	MILLIONS									THOUSANDS x 0.01			MILLIONS		
YEAR															
1974	58.68	17.83	2.10	7.76	20.13	19.01	0.06	2.41	1.51	0.21	0.69	3.57	4.11	0.56	134.61
1980	63.02	20.99	2.63	11.02	22.41	25.97	2.54	2.84	1.78	0.14	1.07	5.00	2.59	0.35	156.76
1985	46.75	26.24	3.45	22.61	24.57	27.97	15.58	3.32	2.08	0.15	1.22	6.86	2.82	0.38	176.59
2000	15.79	41.73	5.56	51.79	33.78	29.28	47.28	4.52	2.83	0.15	1.15	10.55	3.79	0.52	238.06
2010	19.21	50.84	6.78	63.10	41.15	35.67	57.62	5.51	3.45	0.15	1.15	12.91	4.62	0.63	289.99

Figure E-4 (Continued)

TABLE 6 NOISE IMPACT FOR EACH YEAR IN THE TIMESTREAM *RNMRUN:09/24/80*

	TOTAL US POPULATION	POPULATION EXPOSED >55DB, PEXP	RELATIVE EXPOSURE PEXP/TOPOP	POPULATION IMPACTED POPIMP	LEVEL-WEIGHTED POPULATION LWP	NOISE IMPACT INDEX, NII= LWP/TOPOP	CHANGE IN LWP DLWP= LWPO-LWP	RELATIVE CHANGE IN IN LWP RCI= DLWP/LWPO
UNIT>	MILLIONS	MILLIONS	PERCENT	MILLIONS	MILLIONS	PERCENT	MILLIONS	PERCENT
YEAR								
1974	216.70	80.35	37.08	80.35	25.20	11.63	0.0	0.0
1980	232.80	91.90	39.48	91.90	29.53	12.69	-4.33	-17.20
1985	246.08	105.95	43.05	105.95	34.62	14.07	-9.42	-37.39
2000	285.11	146.40	51.35	146.40	49.19	17.25	-23.99	-95.21
2010	310.86	176.70	56.84	176.70	60.63	19.50	-35.43	-140.60

Figure E-4 (Continued)

TABLE 7 AREA SPECIFIC IMPACT METRICS

RNMRUN:09/24/80

		AREA TYPE,J									
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
YEAR	VARIABLE	PEXP AND LWP IN MILLIONS, NII IN PERCENT.									
1974	EXPOSED>	29.06	12.43	7.74	10.22	5.29	3.41	3.49	6.94	1.77	80.35
	NII, % >	18.40	18.25	15.51	17.28	15.08	12.78	12.00	11.76	0.62	11.63
	LWP >	9.10	4.14	2.50	3.25	1.65	0.99	1.07	2.12	0.40	25.20
1980	EXPOSED>	34.01	14.40	8.95	11.25	5.84	3.80	3.83	7.55	2.26	91.90
	NII, % >	20.39	20.12	17.14	19.08	16.73	14.31	13.33	13.07	0.72	12.69
	LWP >	10.93	4.88	2.95	3.66	1.87	1.13	1.21	2.40	0.52	29.53
1985	EXPOSED>	39.82	16.93	10.50	12.51	6.50	4.26	4.28	8.35	2.79	105.95
	NII, % >	22.82	22.36	19.11	21.26	18.66	16.10	14.91	14.59	0.84	14.07
	LWP >	13.02	5.80	3.52	4.14	2.11	1.29	1.37	2.72	0.66	34.62
2000	EXPOSED>	57.52	24.20	14.91	15.61	8.15	5.37	5.48	10.76	4.39	146.40
	NII, % >	28.54	27.56	23.61	26.38	23.17	20.28	18.65	18.17	1.12	17.25
	LWP >	19.25	8.52	5.18	5.37	2.75	1.70	1.80	3.55	1.07	49.19
2010	EXPOSED>	71.15	29.50	18.20	17.82	9.30	6.14	6.32	12.52	5.74	176.70
	NII, % >	32.54	31.18	26.71	29.47	26.39	23.29	21.32	20.78	1.34	19.50
	LWP >	24.23	10.67	6.50	6.28	3.22	2.01	2.12	4.18	1.42	60.63

Figure E-4 (Continued)

TABLE 8 IMPACT METRICS BY ROADWAY TYPE, IN MILLIONS

RNMRUN:09/24/80

YEAR	VARIABLE	ROADWAY TYPE, K						TOTAL ALL TYPES
		1	2	3	4	5	6	
1974	EXPOSED>	2.43	2.02	11.52	15.97	14.32	34.09	80.35
	IMPACTED>	2.43	2.02	11.52	15.97	14.32	34.09	80.35
	LWP >	1.62	1.40	6.02	5.40	3.64	6.92	25.20
1980	EXPOSED>	2.61	2.20	12.20	17.11	15.83	41.94	91.90
	IMPACTED>	2.61	2.20	12.20	17.11	15.83	41.94	91.90
	LWP >	2.02	1.56	6.76	6.25	4.37	8.58	29.53
1985	EXPOSED>	2.78	2.37	12.82	18.14	17.17	52.67	105.95
	IMPACTED>	2.78	2.37	12.82	18.14	17.17	52.67	105.95
	LWP >	2.22	1.72	7.50	7.17	5.18	10.83	34.62
2000	EXPOSED>	3.30	2.87	14.65	20.94	20.20	84.44	146.40
	IMPACTED>	3.30	2.87	14.65	20.94	20.20	84.44	146.40
	LWP >	2.78	2.17	9.49	9.57	7.29	17.90	49.19
2010	EXPOSED>	3.68	3.25	15.92	22.82	22.11	106.93	176.70
	IMPACTED>	3.68	3.25	15.92	22.82	22.11	106.93	176.70
	LWP >	3.18	2.50	10.90	11.30	8.82	23.94	60.63

Figure E-4 (Continued)

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TABLE 9 LEVEL-WEIGHTED POPULATION IN DB BANDS ABOVE 55

HNMRUN109/24/80

LDN	DBA RANGE, IDB												TOTAL
	2	3	4	5	6	7	8	9	10	11	12	13	
DBA RANGE	91.– 88.	88.– 85.	85.– 82.	82.– 79.	79.– 76.	76.– 73.	73.– 70.	70.– 67.	67.– 64.	64.– 61.	61.– 58.	58.– 55.	
YEAR	MILLIONS OF LEVEL-WEIGHTED PEOPLE												
1974	0.0	0.00	0.00	0.18	0.53	1.25	2.43	3.84	5.16	5.41	4.43	1.97	25.20
1980	0.0	0.00	0.01	0.28	0.70	1.63	3.01	4.60	6.04	6.02	5.03	2.21	29.53
1985	0.0	0.00	0.04	0.40	0.92	2.11	3.68	5.47	6.96	6.70	5.81	2.53	34.62
2000	0.00	0.00	0.23	0.74	1.68	3.43	5.56	7.91	9.22	8.94	7.99	3.48	49.19
2010	0.00	0.02	0.42	1.05	2.43	4.51	7.06	9.82	10.74	10.83	9.65	4.09	60.63

Figure E-4 (Continued)

TABLE 10 POPULATION EXPOSED IN DB BANDS ABOVE 55 *RNMRUN:09/24/80*

PEXP	DBA RANGE, 1DB												TOTAL
	2	3	4	5	6	7	8	9	10	11	12	13	
DBA RANGE	91.- 88.	88.- 85.	85.- 82.	82.- 79.	79.- 76.	76.- 73.	73.- 70.	70.- 67.	67.- 64.	64.- 61.	61.- 58.	58.- 55.	
YEAR	MILLIONS OF PEOPLE												
1974	0.0	0.00	0.00	0.14	0.47	1.27	2.95	5.71	9.85	14.37	19.64	25.93	80.34
1980	0.0	0.00	0.01	0.23	0.62	1.68	3.66	6.82	11.51	15.95	22.30	29.12	91.89
1985	0.0	0.00	0.03	0.32	0.82	2.17	4.48	8.11	13.24	17.75	25.69	33.32	105.93
2000	0.00	0.00	0.16	0.59	1.51	3.52	6.76	11.73	17.50	23.81	35.30	45.52	146.39
2010	0.00	0.01	0.30	0.83	2.17	4.63	8.57	14.55	20.37	28.84	42.71	53.69	176.69

Figure E-4 (Continued)

TABLE 11 POPULATION GROWTH FACTOR FOR EACH NET YEAR *RNMRUN:09/24/80*

		AREA TYPE,J									
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
YEAR	VARIABLE	POP(YEAR)/POP(BASELINE)									
1974		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
1980		1.08	1.07	1.07	1.02	1.02	1.02	1.02	1.02	1.12	
1985		1.15	1.14	1.14	1.04	1.04	1.04	1.04	1.04	1.22	
2000		1.36	1.36	1.36	1.08	1.08	1.09	1.09	1.09	1.48	
2010		1.50	1.51	1.51	1.12	1.12	1.12	1.12	1.12	1.65	

Figure E-4 (Continued)

TABLE 12. 1   LIGHT VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 1)   *RNMRUN109/24/80*

VEHICLE TYPE >	****PRNT11							
	1	2	3	4	5	6	7	
MODEL YEAR V	VEHICLE BREAKDOWN, VBD(I).							SUM
1957	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1958	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1959	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1960	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1961	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1962	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1963	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1964	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1965	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1966	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1967	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1968	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1969	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1970	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1971	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1972	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1973	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1974	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1975	0.4579	0.1388	0.0170	0.0612	0.1535	0.1709	0.0007	1.0000

Figure E-4 (Continued)

TABLE 12. 2 LIGHT VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 2) *RNMRUN109/24/80*

VEHICLE TYPE >	****PRNT11							
	1	2	3	4	5	6	7	
MODEL YEAR Y	VEHICLE BREAKDOWN, VBD(I).							SUM
1976	0.4484	0.1356	0.0173	0.0606	0.1468	0.1905	0.0008	1.0000
1977	0.4390	0.1324	0.0176	0.0600	0.1400	0.2100	0.0010	1.0000
1978	0.3929	0.1390	0.0185	0.0812	0.1412	0.2000	0.0271	1.0000
1979	0.3468	0.1456	0.0194	0.1025	0.1425	0.1900	0.0532	1.0000
1980	0.3006	0.1522	0.0203	0.1237	0.1437	0.1800	0.0794	1.0000
1981	0.2545	0.1588	0.0212	0.1450	0.1450	0.1700	0.1055	1.0000
1982	0.2084	0.1655	0.0220	0.1662	0.1462	0.1600	0.1316	1.0000
1983	0.1623	0.1721	0.0229	0.1875	0.1475	0.1500	0.1577	1.0000
1984	0.1161	0.1787	0.0238	0.2087	0.1487	0.1400	0.1839	1.0000
1985	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1986	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1987	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1988	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1989	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1990	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1991	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1992	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1993	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1994	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1995	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000

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Figure E-4 (Continued)

```
TABLE 12. 3    LIGHT VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE  3 )                          *RNMRUN109/24/80*

-------------------------------------------------------------------------------------------------------
|              |                                                                 ****PRN(I) |          |
| VEHICLE      |-------------------------------------------------------------------------------|          |
| TYPE  >      |___1___|___2___|___3___|___4___|___5___|___6___|___7___|          |
|              |                                                                               |          |
| MODEL YEAR   |                 VEHICLE BREAKDOWN, VBD(I).                                  |   SUM    |
|   Y          |                                                                               |          |
-------------------------------------------------------------------------------------------------------
|         1996 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         1997 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         1998 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         1999 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2000 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2001 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2002 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2003 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2004 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2005 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2006 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2007 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2008 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2009 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2010 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2011 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2012 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
|         2013 | 0.0700 | 0.1853 | 0.0247 | 0.2300 | 0.1500 | 0.1300 | 0.2100 | 1.0000 |
-------------------------------------------------------------------------------------------------------
```

Figure E-4 (Concluded)

```
? USE RIFEX2 CLR

? LIST

   1.     Y1957V01RBL
   2.     Y1957V02RBL
   3.     Y1957V03RBL
   4.     Y1957V04RBL
   5.     Y1957V05RBL
   6.     Y1957V06RBL
   7.     Y1957V07RBL
   8.     Y1957V08RBL
   9.     Y1984V08R83
  10.     Y1988V08R80
  11.     Y1995V08R77
  12.     Y2005V08R75
  13.     Y1957V09RBL
  14.     Y1984V09R83
  15.     Y1988V09R80
  16.     Y1995V09R77
  17.     Y2005V09R75
  18.     Y1957V10RBL
  19.     Y1957V11RBL
  20.     Y1957V12RBL
  21.     Y1957V13RBL
  22.     Y1984V13R83
  23.     Y1988V13R80
  24.     Y1995V13R78
  25.     Y2005V13R75
  26.     Y1957V14RBL
```

Figure E-5. Regulation Instructions for Example 2

```
READY
EXEC NRTNEM

>>>>NATIONAL ROADWAY NOISE MODEL VERSION 9R 09/29/80 19:09:30
S1. VERSION(SEM OR GAR)   :SEM (CR)

S3. ENTER EDITING COMMANDS.
?C 13400 /11110000000/111111100110/ (CR)

13400 IPRINT   :111111100110
?C 13700 /0000000000000/0000000110C011/ (CR)

13700 IVMASK   :0000000110011
?C 13820 /1111001/1000000/ (CR)

13820 METMSK   :1000000
? (CR)

S4.5 REGULATION INSTRUCTION FILE:RIFEX2 (CR)

S5. ENTER VEH.GROWTH F. FILE    :VGFS001 (CR)

S6. ENTER NET-YEARS(MAX 9):'1974,1980,1988,1996,2004,2012' (CR)

S7. ENTER -PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
LIMITS :  -XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.
          :RRACKL   SEMEX2UG 20   4    BW    1    WYLE YES (CR)

END OF DATA
END OF DATA
S8. COMMAND:
?17400 * EXAMPLE 2 FOR USER'S GUIDE (CR)

?17600 * TRUCKS AND MOTORCYCLES ONLY WITH REGULATIONS EXTENDING (CR)

?17700 * INTO YEAR 2005. (CR)

?17800 * SLEEP DISRUPTION ONLY. ALL POSSIBLE OUTPUT REQUESTED. (CR)

?18100 *                          PREPARED BY R. RACKL, WYLE LABS (CR)

?C 9020 /HOLD/REMOTE82/ (CR)

09020 /*ROUTE  PRINT REMOTE82
? (CR)

SAVED
JOB EPADYOBW(JOB00823 SUBMITTED
DELETE SUBMITTED JCL FILE? Y OR N:N (CR)

YOU MUST DELETE RNMTEMP.CNTL BEFORE YOUR NEXT EXEC $RNMSUF.
READY
```

Figure E-6. TSO Conversation for Submitting Example 2 Job

```
16.57.06 JOB  8238 IEF677I WARNING MESSAGE(S) FOR JOB EPADYOBW ISSUED
16.59.05 JOB  8238 IEF677I WARNING MESSAGE(S) FOR JOB EPADYOBW ISSUED
16.59.06 JOB  8238 ICH70001I EPADYO   LAST ACCESS AT 16:49:04 ON 80.273
16.59.06 JOB  8238 RACF:  JOB=EPADYOBW, U=EPADYO, G=S2KC, ACEEFLG1=01
16.59.06 JOB  8238 $HASP373 EPADYOBW STARTED - INIT 11 - CLASS B                                   29 SEP 80
17.02.31 JOB  8238 IEC130I SYSLIB   DD STATEMENT MISSING
18.15.42 JOB  8238 MCC005I * JOB EPADYOBW ENDED 09/29/80 AT 18:15:42, P=4/5/4     CC=0000
18.15.42 JOB  8238 $HASP395 EPADYOBW ENDED


                                   -- JES2 / NJE VERSION REL 1.0 JOB STATISTICS --


      137 CARDS READ         2,104 SYSOUT PRINT RECORDS             0 SYSOUT PUNCH RECORDS         76.63 MINUTES EXECUTION TIME
```

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Figure E-7. Example of Output 2

```
 1    //EPADYUBW JOB (S2KC,WYLE,,25,,,1,,),WRACKL,                            JOB  623
      //       TIME=(20,0),NOTIFY=EPADYU,PRTY=4                               00009001
      ***ROUTE PRINT REMOTER2                                                 00009020
      *** THIS IS FILE RNMEXE9R (1980 SEP 23)                                 00009450
      ***        TO BE EDITED BY $RNMSUF.CLIST                                00009451
 2    //LKED     EXEC PGM=IEWL,REGION=192K                                    00009454
 3    //SYSPRINT DD  SYSOUT=A                                                 00009456
 4    //SYSLMOD  DD  DSN=&KLOD(VS9R),DISP=(,PASS),UNIT=SYSDA,                 00009458
      //             SPACE=(CYL,(2,1,2),RLSE),DCB=BUFNO=1                     00009460
 5    //SYSUT1   DD  UNIT=SYSDA,SPACE=(1024,(120,120),,,ROUND),               00009462
      //             DCB=BUFNO=1                                              00009464
 6    //SYSLIB   DD  DSN=SYS1.FIM2LIB,DISP=SHR                                00009466
 7    //         DD  DSN=SYS1.FORTLIB,DISP=SHR                                00009468
 8    //RNMOLIB  DD  DSN=CN.EPADYN.S2KC.BUILD,DISP=SHR                        00009470
 9    //SYSLIN   DD  *                                                        00009472
10    //AUSF  EXEC  PGM=LOADER,PARM='EP=MAIN,TERM,SIZE=400K',REGION=700K      00010000
11    //SYSLIN DD DSN=*.LKED.SYSLMOD,DISP=(OLD,DELETE,DELETE)                 00010020
12    //SYSLOUT DD SYSOUT=A                                                   00010040
13    //SYSTERM DD SYSOUT=A                                                   00010060
14    //FT05F001 DD DSN=CN.EPADYO.S2KC.WYLIB(VGFS001),DISP=SHR                00012500
15    //FT06F001 DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3155)           00012700
16    //FT01F001 DD DSNAME=&PLINF,DISP=(NEW,PASS),SPACE=(3120,(40,40)),       00012800
      //            UNIT=SYSDA,DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)           00012900
17    //FT02F001 DD DSN=CN.EPADYO.S2KC.RIFEX2,DISP=SHR                        00012930
18    //FT08F001 DD DSN=CN.EPADYN.S2KC.NLDICT,DISP=SHR                        00012940
19    //FT03F001 DD DSN=CN.EPADYN.S2KC.WYLIB(MILE),DISP=SHR                   00013000
20    //          DD DSN=CN.EPADYN.S2KC.WYLIB(PERCNT),DISP=SHR                00013050
21    //          DD DSN=CN.EPADYN.S2KC.WYLIB(FIMP),DISP=SHR                  00013100
22    //          DD DSN=CN.EPADYN.S2KC.WYLIB(FLUMIX08),DISP=SHR              00013150
23    //FT04F001 DD *                                                         00013200
24    //PLKED EXEC PGM=IEWL,REGION=150K                                       00018310
25    //SYSLIB DD DSN=SYS1.FIM2LIB,DISP=SHR                                   00018320
26    //           DD DSN=SYS1.FORTLIB,DISP=SHR                               00018321
27    //        DD DSN=SYS2.IPP.LOAD,DISP=SHR                                 00018322
28    //SYSPRINT DD SYSOUT=A                                                  00018330
29    //SYSLMOD  DD  DSN=&GOSET(MAIN),DISP=(,PASS),UNIT=SYSDA,                00018340
      //             SPACE=(TRK,(10,10,1),RLSE)                               00018350
30    //SYSUT1   DD  UNIT=SYSDA,SPACE=(TRK,(10,10),RLSE)                      00018360
31    //PLLIB  DD  DSN=SYS2.IPP.LOAD,DISP=SHR                                 00018370
32    //RNMOLIB DD DSN=CN.EPADYN.S2KC.BUILD,DISP=SHR                          00018380
33    //SYSLIN   DD *                                                         00018400
34    //PLOGO EXEC PGM=*.PLKED.SYSLMOD,COND=(4,LT,LKED),REGION=150K           00018440
35    //FT01F001 DD DDNAME=SYSIN,DCB=BLKSIZE=80                               00018445
36    //FT02F001 DD DSN=&IPPTAPE,UNIT=SYSDA,SPACE=(CYL,(2,2),RLSE),           00018450
      //    DCB=(RECFM=VSB,LRECL=516,BLKSIZE=3156),DISP=(NEW,PASS,DELETE)     00018460
37    //FT05F001  DD  DSN=&PLINF,DISP=(OLD,DELETE)                            00018470
38    //FT06F001  DD  SYSOUT=A                                                00018480
39    //FT15F001  DD  SYSOUT=A                                                00018490
40    //PRPLOT EXEC PGM=PRINTER,COND=(8,LE),REGION=100K                       00018500
41    //STEPLIB DD DSN=SYS2.IPP.LOAD,DISP=SHR                                 00018510
42    //FT01F001 DD DDNAME=SYSIN,DCB=BLKSIZE=80                               00018515
43    //FT02F001 DD DSN=&IPPTAPE,DISP=(OLD,DELETE,DELETE)                     00018520
44    //FT06F001 DD SYSOUT=A                                                  00018530
45    //FT15F001 DD  SYSOUT=A                                                 00018540
```

Figure E-7 (Continued)

```
STMT NO. MESSAGE
-
   40     IEF686I DDNAME REFERRED TO ON DDNAME KEYWORD IN PRIOR STEP WAS NOT RESOLVED
   45     IEF686I DDNAME REFERRED TO ON DDNAME KEYWORD IN PRIOR STEP WAS NOT RESOLVED
ICH70001I EPADYO   LAST ACCESS AT 16:49:04 ON 80.273
HALF:  JOB=EPADYOBW, U=EPADYO, G=S2KC, ALLEFLGI=01
$HASP373 STARTED - INIT 11 - CLASS B                                    29 SEP 80
IEF236I ALLOC. FOR EPADYOBW LKED
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I 380  ALLOCATED TO SYSLMOD
IEF237I 222  ALLOCATED TO SYSUT1
IEF237I 210  ALLOCATED TO SYSLIB
IEF237I 372  ALLOCATED TO
IEF237I 380  ALLOCATED TO RNMOLIB
IEF237I 231  ALLOCATED TO SYS00270
IEF237I JES2 ALLOCATED TO SYSLIN
IEF142I EPADYOBW LKED - STEP WAS EXECUTED - COND CODE 0000
IEF285I   JES2.JOB00823.SO0104                           SYSOUT
IEF285I   SYS80273.T165904.RA000.EPADYOBW.LOD            PASSED
IEF285I   VOL SER NOS= WORK59.
IEF285I   SYS80273.T165904.RA000.EPADYOBW.R0000001       DELETED
IEF285I   VOL SER NOS= WORK60.
IEF285I   SYS1.FTN2LIB                                   KEPT
IEF285I   VOL SER NOS= APPL01.
IEF285I   SYS1.FORTLIB                                   KEPT
IEF285I   VOL SER NOS= MVSSYS.
IEF285I   CN.EPADYN.S2KC.BUILD                           KEPT
IEF285I   VOL SER NOS= USER68.
IEF285I   SYSCTLG.VSYSTM1                                KEPT
IEF285I   VOL SER NOS= SYSTM1.
IEF285I   JES2.JOB00823.SI0101                           SYSIN
IEF373I STEP /LKED    / START 80273.1659
IEF374I STEP /LKED    / STOP  80273.1702 CPU    0MIN 04.58SEC SRB    0MIN 01.80SEC VIRT   196K SYS   224K
WCC949I ****************** COMNET - SYSTEM GG32 - STEP SUMMARY ****************
WCC949I *                                                                     *
WCC950I * JOB EPADYOBW,  STEP LKED:          27.90 CUU             CC: 0000   *
WCC949I *                                                                     *
WCC950I *  START MONDAY 09/29/80 AT 16:59:06         STOP 09/29/80 AT 17:02:00 *
WCC950I *     2:53.80 ELAPSED    0:04.58 TCB    0:01.80 SRB    0:06.38 TOT CPU *
WCC950I *  MEMORY:   6504K VIRTUAL ADDRESS SPACE,   420K USED                 *
WCC950I *  EXCPS:       3045 DA,         0 MT,        0 OTHER,      3045 TOTAL *
WCC949I *                                                                     *
WCC950I *  EXCPS BY UNIT:    000:        0    980:       80    822:       130  *
WCC950I *   210:  '   177    372:        2    98D:     2656    231:         0  *
WCC950I *   000:         0                                                    *
WCC949I *                                                                     *
WCC950I *  PAGES IN:            0 VIO,          0 SWAP,         22 OTHER      *
WCC950I *  PAGES OUT:           0 VIO,          0 SWAP,         41 OTHER      *
WCC950I *               265 PAGE SECONDS             165.70 RESIDENT SECONDS  *
WCC950I *             25584 SERVICE UNITS                                     *
WCC950I *  CUU COST FOR STEP LKED      AT PRIORITY 4/5/4:                $7.81 *
WCC950I *   MOUNT CHARGES:       0 DISK,      0 TAPE:                    $0.00 *
WCC950I *  TOTAL COST FOR STEP LKED     OF JOB EPADYOBW:                 $7.81 *
WCC949I *                                                                     *
WCC949I ***********************************************************************
IEF236I ALLOC. FOR EPADYOBW AUSF
IEF237I 380  ALLOCATED TO SYSLIN
IEF237I JES2 ALLOCATED TO SYSLOUT
IEF237I JES2 ALLOCATED TO SYSTERM
IEF237I 118  ALLOCATED TO FT05F001
IEF237I 231  ALLOCATED TO SYS00272
```

Figure E-7 (Continued)

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```
IEF237I JES2 ALLOCATED TO FT06F001
IEF237I 222  ALLOCATED TO FT01F001
IEF237I 125  ALLOCATED TO FT02F001
IEF237I 23A  ALLOCATED TO FT08F001
IEF237I 368  ALLOCATED TO FT03F001
IEF237I 368  ALLOCATED TO
IEF237I 368  ALLOCATED TO
IEF237I 368  ALLOCATED TO
IEF237I JES2 ALLOCATED TO FT04F001
IEC130I SYSLIB   DD STATEMENT MISSING
IEF142I EPADYUBW AUSF - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS80273.T165904.RA000.EPADYUBW.LOD          DELETED
IEF285I   VOL SER NOS= WORK59.
IEF285I   JES2.JOB00823.S00105                         SYSOUT
IEF285I   JES2.JOB00823.S00106                         SYSOUT
IEF285I   CN.EPADYU.S2KC.MYLIB                         KEPT
IEF285I   VOL SER NOS= USER67.
IEF285I   SYSCTLG.VSYSTM1                              KEPT
IEF285I   VOL SER NOS= SYSTM1.
IEF285I   JES2.JOB00823.S00107                         SYSOUT
IEF285I   SYS80273.T165904.RA000.EPADYUBW.PLINF        PASSED
IEF285I   VOL SER NOS= WORK60.
IEF285I   CN.EPADYU.S2KC.WIFEX2                        KEPT
IEF285I   VOL SER NOS= USER74.
IEF285I   CN.EPADYN.S2KC.NLDICT                        KEPT
IEF285I   VOL SER NOS= USER76.
IEF285I   CN.EPADYN.S2KC.MYLIB                         KEPT
IEF285I   VOL SER NOS= USER69.
IEF285I   CN.EPADYN.S2KC.MYLIB                         KEPT
IEF285I   VOL SER NOS= USER69.
IEF285I   CN.EPADYN.S2KC.MYLIB                         KEPT
IEF285I   VOL SER NOS= USER69.
IEF285I   CN.EPADYN.S2KC.MYLIB                         KEPT
IEF285I   VOL SER NOS= USER69.
IEF285I   JES2.JOB00823.SI0102                         SYSIN
IEF373I STEP /AUSF    / START 80273.1702
IEF374I STEP /AUSF    / STOP  80273.1814 CPU    4MIN 27.49SEC SRB    0MIN 00.44SEC VIRT   432K SYS   244K
WCC949I ****************** COMNET - SYSTEM GG32 - STEP SUMMARY ****************
WCC949I *                                                                     *
WCC950I * JOB EPADYUBW,  STEP AUSF:          604.21 CUU              CC: 0000  *
WCC949I *                                                                     *
WCC950I *  START MONDAY 09/29/80 AT 17:02:00        STOP 09/29/80 AT 18:14:33 *
WCC950I *    72:32.85 ELAPSED    4:27.49 TCB    0:00.44 SRB    4:27.93 TOT CPU *
WCC950I *  MEMORY:   8304K VIRTUAL ADDRESS SPACE,   676K USED                 *
WCC950I *  EXCPS:       108 DA,          0 MT,         0 OTHER,      108 TOTAL *
WCC949I *                                                                     *
WCC950I *  EXCPS BY UNIT:    380:      78     000:        0    000:        0  *
WCC950I *   718:        2    251:       0     060:        0    822:        1  *
WCC950I *   725:        2    83A:      12     368:        6    368:        2  *
WCC950I *   368:        2    368:       3     000:        0                   *
WCC949I *                                                                     *
WCC950I *  PAGES IN:               0 VIO,         717 SWAP,       296 OTHER   *
WCC950I *  PAGES OUT:              0 VIO,         365 SWAP,       118 OTHER   *
WCC950I *            10179 PAGE SECONDS               2427.38 RESIDENT SECONDS *
WCC950I *           538841 SERVICE UNITS                                      *
WCC950I *  CUU COST FOR STEP AUSF      AT PRIORITY 4/5/4:             $169.18 *
WCC950I *   MOUNT CHANGES:      0 DISK,      0 TAPE:                   $0.00 *
WCC950I *  TOTAL COST FOR STEP AUSF     OF JOB EPADYUBW:              $169.18 *
WCC949I *                                                                     *
WCC949I ***********************************************************************
IEF236I ALLOC. FOR EPADYUBW PLKED
```

Figure E-7 (Continued)

```
IEF237I 210  ALLOCATED TO SYSLIB
IEF237I 372  ALLOCATED TO
IEF237I 210  ALLOCATED TO
IEF237I 210  ALLOCATED TO SYS00274
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I 233  ALLOCATED TO SYSLMOD
IEF237I 222  ALLOCATED TO SYSUT1
IEF237I 210  ALLOCATED TO PLLIB
IEF237I 380  ALLOCATED TO HNMOLIB
IEF237I 231  ALLOCATED TO SYS00276
IEF237I JES2 ALLOCATED TO SYSLIN
IEF142I EPADYOBW PLKED - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS1.FTM2LIB                                  KEPT
IEF285I   VOL SER NOS= APPL01.
IEF285I   SYS1.FORTLIB                                  KEPT
IEF285I   VOL SER NOS= MVSSYS.
IEF285I   SYS2.IPP.LOAD                                 KEPT
IEF285I   VOL SER NOS= APPL01.
IEF285I   SYSCTLG.VAPPL01                               KEPT
IEF285I   VOL SER NOS= APPL01.
IEF285I   JES2.JOB00823.SO0108                          SYSOUT
IEF285I   SYS80273.T165904.RA000.EPADYOBW.GOSET         PASSED
IEF285I   VOL SER NOS= WORK58.
IEF285I   SYS80273.T165904.RA000.EPADYOBW.R0000002      DELETED
IEF285I   VOL SER NOS= WORK60.
IEF285I   SYS2.IPP.LOAD                                 KEPT
IEF285I   VOL SER NOS= APPL01.
IEF285I   CN.EPADYN.S2KC.BUILD                          KEPT
IEF285I   VOL SER NOS= USER68.
IEF285I   SYSCTLG.VSYSIM1                               KEPT
IEF285I   VOL SER NOS= SYSIM1.
IEF285I   JES2.JOB00823.SI0103                          SYSIN
IEF373I STEP /PLKED   / START 80273.1814
IEF374I STEP /PLKED   / STOP  80273.1815 CPU    0MIN 01.66SEC SRB    0MIN 00.49SEC VIRT   156K SYS   236K
MCC949I ****************** COMNET - SYSTEM GG32 - STEP SUMMARY ****************
MCC949I *                                                                     *
MCC950I * JOB EPADYOBW,  STEP PLKED:          8.67 CUU             CC: 0000   *
MCC949I *                                                                     *
MCC950I *  START MONDAY 09/29/80 AT 18:14:33        STOP 09/29/80 AT 18:15:21 *
MCC950I *     0:48.35 ELAPSED    0:01.66 TCB    0:00.49 SRB    0:02.15 TOT CPU *
MCC950I *  MEMORY:   8304K VIRTUAL ADDRESS SPACE,   392K USED                 *
MCC950I *  EXCPS:       830 DA,        0 MT,        0 OTHER,       830 TOTAL  *
MCC949I *                                                                     *
MCC950I *  EXCPS BY UNIT:    210:       461    372:       24   210:        0  *
MCC950I *   210:        0    000:         0    233:       67   222:      140  *
MCC950I *   210:       16    380:       122    231:        0   000:        0  *
MCC949I *                                                                     *
MCC950I *  PAGES IN:              0 VIO,           0 SWAP,          5 OTHER   *
MCC950I *  PAGES OUT:             0 VIO,           0 SWAP,          0 OTHER   *
MCC950I *                 99 PAGE SECONDS               44.38 RESIDENT SECONDS *
MCC950I *                7950 SERVICE UNITS                                   *
MCC950I *  CPU COST FOR STEP PLKED    AT PRIORITY 4/5/4:                $2.43 *
MCC950I *   MOUNT CHARGES:        0 DISK,      0 TAPE:                  $0.00 *
MCC950I *  TOTAL COST FOR STEP PLKED    OF JOB EPADYOBW:                $2.43 *
MCC949I *                                                                     *
MCC949I ***********************************************************************
IEF236I ALLOC. FOR EPADYOBW PLOGO
IEF237I 233  ALLOCATED TO PGM=*.DD
IEF237I DMY  ALLOCATED TO FT01F001
IEF237I 380  ALLOCATED TO FT02F001
IEF237I 222  ALLOCATED TO FT05F001
```

Figure E-7 (Continued)

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```
IEF237I JES2 ALLOCATED TO FT06F001
IEF237I JES2 ALLOCATED TO FT15F001
IEF142I EPADYOBW PLOGO - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS80273.T165904.RA000.EPADYOBW.GOSET          KEPT
IEF285I   VOL SER NOS= WORK58.
IEF285I   SYS80273.T165904.RA000.EPADYOBW.IPPTAPE        PASSED
IEF285I   VOL SER NOS= WORK59.
IEF285I   SYS80273.T165904.RA000.EPADYOBW.PLINF          DELETED
IEF285I   VOL SER NOS= WORK60.
IEF285I   JES2.JOB00823.SO0109                           SYSOUT
IEF285I   JES2.JOB00823.SO0110                           SYSOUT
IEF373I STEP /PLOGO   / START 80273.1815
IEF374I STEP /PLOGO   / STOP  80273.1815 CPU    0MIN 00.36SEC SRB    0MIN 00.03SEC VIRT    96K SYS   180K
WCC949I ****************** COMNET - SYSTEM GG32 - STEP SUMMARY ****************
WCC949I *                                                                       *
WCC950I * JOB EPADYOBW,  STEP PLOGO:           0.90 CUU              CC:  0000  *
WCC949I *                                                                       *
WCC950I *  START MONDAY 09/29/80 AT 18:15:21           STOP 09/29/80 AT 18:15:32 *
WCC950I *     0:10.99 ELAPSED    0:00.36 TCB    0:00.03 SRB    0:00.39 TOT CPU *
WCC950I *  MEMORY:   8304K VIRTUAL ADDRESS SPACE,   276K USED                   *
WCC950I *  EXCPS:          5 DA,          0 MT,      0 OTHER,          5 TOTAL  *
WCC949I *                                                                       *
WCC950I *  EXCPS BY UNIT:    233:        0     000:        0    980:        3   *
WCC950I *   822:          2     000:        0     000:        0                 *
WCC949I *                                                                       *
WCC950I *  PAGES IN:              0 VIO,              0 SWAP,          0 OTHER  *
WCC950I *  PAGES OUT:             0 VIO,              0 SWAP,          0 OTHER  *
WCC950I *                19 PAGE SECONDS                 8.89 RESIDENT SECONDS  *
WCC950I *               828 SERVICE UNITS                                       *
WCC950I *  CUU COST FOR STEP PLOGO    AT PRIORITY 4/5/4:               $0.25   *
WCC950I *   MOUNT CHARGES:       0 DISK,     0 TAPE:                   $0.00   *
WCC950I *  TOTAL COST FOR STEP PLOGO    OF JOB EPADYOBW:               $0.25   *
WCC949I *                                                                       *
WCC949I *************************************************************************
IEF236I ALLOC. FOR EPADYOBW PRPLOT
IEF237I 210  ALLOCATED TO STEPLIB
IEF237I 210  ALLOCATED TO SYS00278
IEF237I DMY  ALLOCATED TO FT01F001
IEF237I 380  ALLOCATED TO FT02F001
IEF237I JES2 ALLOCATED TO FT06F001
IEF237I JES2 ALLOCATED TO FT15F001
IEF142I EPADYOBW PRPLOT - STEP WAS EXECUTED - COND CODE 0000
IEF285I   SYS2.IPP.LOAD                                  KEPT
IEF285I   VOL SER NOS= APPL01.
IEF285I   SYSCTLG.VAPPL01                                KEPT
IEF285I   VOL SER NOS= APPL01.
IEF285I   SYS80273.T165904.RA000.EPADYOBW.IPPTAPE        DELETED
IEF285I   VOL SER NOS= WORK59.
IEF285I   JES2.JOB00823.SO0111                           SYSOUT
IEF285I   JES2.JOB00823.SO0112                           SYSOUT
IEF373I STEP /PRPLOT  / START 80273.1815
IEF374I STEP /PRPLOT  / STOP  80273.1815 CPU    0MIN 00.86SEC SRB    0MIN 00.02SEC VIRT    84K SYS   232K
WCC949I ****************** COMNET - SYSTEM GG32 - STEP SUMMARY ****************
WCC949I *                                                                       *
WCC950I * JOB EPADYOBW,  STEP PRPLOT:          2.10 CUU              CC:  0000  *
WCC949I *                                                                       *
WCC950I *  START MONDAY 09/29/80 AT 18:15:33           STOP 09/29/80 AT 18:15:42 *
WCC950I *     0:09.03 ELAPSED    0:00.86 TCB    0:00.02 SRB    0:00.88 TOT CPU *
WCC950I *  MEMORY:   8304K VIRTUAL ADDRESS SPACE,   316K USED                   *
WCC950I *  EXCPS:          3 DA,          0 MT,      0 OTHER,          3 TOTAL  *
WCC949I *                                                                       *
```

Figure E-7 (Continued)

```
WCC950I *  EXCPS BY UNIT:    210:        0    210:        0    000:        0   *
WCC950I *   380:         3    000:        0    000:        0                   *
WCC949I *                                                                      *
WCC950I *  PAGES IN:              0 VIO,           0 SWAP,          0 OTHER    *
WCC950I *  PAGES OUT:             0 VIO,           0 SWAP,          0 OTHER    *
WCC950I *                 45 PAGE SECONDS                7.81 RESIDENT SECONDS *
WCC950I *               1935 SERVICE UNITS                                     *
WCC950I *  CUU COST FOR STEP PRPLOT   AT PRIORITY 4/5/4:                 $0.59 *
WCC950I *   MOUNT CHARGES:  '   0 DISK,      0 TAPE:                     $0.00 *
WCC950I *  TOTAL COST FOR STEP PRPLOT   OF JOB EPADYOBW:                 $0.59 *
WCC949I *                                                                      *
WCC949I ************************************************************************
IEF237I 233  ALLOCATED TO SYS00001
IEF285I   SYS80273.T181542.RA000.EPADYOBW.R0000001      KEPT
IEF285I   VOL SER NOS= WORK58.
IEF285I   SYS80273.T165904.RA000.EPADYOBW.GOSET         DELETED
IEF285I   VOL SER NOS= WORK58.
IEF375I  JOB /EPADYOBW/ START 80273.1659
IEF376I  JOB /EPADYOBW/ STOP  80273.1815 CPU    4MIN 34.95SEC SRB    0MIN 02.76SEC
WCC949I ****************** COMNET - SYSTEM GG32 - JOB SUMMARY ******************
WCC949I *                                                                      *
WCC951I * JOB EPADYOBW,   5 STEPS        643.78 TOTAL CUU           CC: 0000   *
WCC949I *                                                                      *
WCC951I *  SUBMIT MONDAY 09/29/80 AT 16:57:05               0:02:00.63 ON QUEUE *
WCC951I *  START 09/29/80 AT 16:59:06                STOP 09/29/80 AT 18:15:42 *
WCC951I *    76:36.00 ELAPSED    4:34.95 TCB    0:02.76 SRB    4:37.73 TOT CPU *
WCC949I *                                                                      *
WCC951I *  PRIORITY REQ/RCD/CHG:  4/5/4                                        *
WCC951I *  TOTAL CUU CHARGE FOR JOB EPADYOBW:                          $180.26 *
WCC951I *   MOUNT CHARGES:      0 DISK,     0 TAPE:                     $0.00 *
WCC951I *  TOTAL COST FOR JOB EPADYOBW, ACCOUNT S2KC:                  $180.26 *
WCC949I *                                                                      *
WCC949I ************************************************************************


F64-LEVEL LINKAGE EDITOR OPTIONS SPECIFIED   NONE
         DEFAULT OPTION(S) USED -  SIZE=(196608,65536)
****VS9R      DOES NOT EXIST BUT HAS BEEN ADDED TO DATA SET
AUTHORIZATION CODE IS        0.


                                                         VS LOADER

OPTIONS USED - PRINT,NOMAP,NOLET,CALL,RES,TERM,SIZE=409600,NAME=**GO
               EP=MAIN

  TOTAL LENGTH    35014
  ENTRY ADDRESS   9C010
```

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Figure E-7 (Continued)

```
******************************************************************
*                                                                *
*      ENVIRONMENTAL PROTECTION AGENCY OF THE UNITED STATES      *
*              OFFICE OF NOISE ABATEMENT AND CONTROL             *
*                                                                *
*         NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL          *
*              SINGLE EVENT MODEL                                *
*                                                                *
*                                                                *
*                                                                *
*                                                                *
******************************************************************
*                                                                *
*                  DATE OF RUN : 09/29/80                        *
*           NAME OF PROGRAMMER : HRACKL                          *
*                  NAME OF RUN : SEMEX2UG                        *
*                 NAME OF PLOT : SEMEX2UG                        *
*   REGULATION INSTRUCTION FILE : CN.EPADYD,S2KC,RIFEX2          *
*            NAME OF DATAFILE 3 : CN.EPADYN,S2KC,WYLIB(MILE)     *
*                               : CN.EPADYN,S2KC,WYLIB(PERCVT)   *
*                               : CN.EPADYN,S2KC,WYLIB(FIMP)     *
*                               : CN.EPADYN,S2KC,WYLIB(FLOMIX08) *
*    VEHICLE GROWTH FACTOR FILE : CN.EPADYD,S2KC,WYLIB(VGFS001)  *
*                                                                *
******************************************************************
*                           COMMENTS                             *
* EXAMPLE FOR USER'S GUIDE                                       *
*                                                                *
* TRUCKS AND MOTORCYCLES ONLY WITH REGULATIONS EXTENDING         *
* INTO YEAR 2005.                                                *
* SLEEP DISRUPTION ONLY. ALL POSSIBLE OUTPUTS REQUESTED.         *
*                                                                *
*                                                                *
*                            PREPARED BY H. RACKL, WYLE LABS     *
******************************************************************
```

Figure E-7 (Continued)

```
   TABLE  1  LISTING OF CONTROL STRINGS AND NET YEARS

 RNAME      :*SEMEX2UG:09/29/80*
 IVMASK     :000000011000011
 KMASK      :111111
 JMASK      :111111111
 METMSK     :1000000
 MODMSK     :111
 IPRINT     :111111100110
 IDUMP      :000000000000
 ICONT      :000000000000
 NYRN       : 6
 MYRNET-1   :1974,1980,1988,1996,2004,2012,    0,    0,    0,
```

Figure E-7 (Continued)

TABLE 2. 1 BASELINE POPULATION DENSITY BY AREA AND DENSITY TYPE. *SEMEX206109/29/80*

		AREA TYPE,J							***PRINT3		
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
ID	VARIABLE	POPULATION DENSITY,IN THOUSANDS PER SQ.MI.									
1		41.83	7.72	5.67	7.47	4.16	3.24	8.05	8.41	0.02	
2		6.24	5.26	4.17	2.29	2.25	1.90	3.33	3.94	0.0	
3		2.58	2.19	1.90	1.17	1.30	1.08	1.57	1.87	0.0	
4		0.0	1.31	1.16	0.0	0.0	0.0	0.69	0.46	0.0	

Figure E-7 (Continued)

TABLE 2. 2 BASELINE POPULATION, BY AREA AND DENSITY TYPE

SEMEX20G:09/29/80

		AREA TYPE,J							****PRINT3		
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
ID	VARIABLE	POPULATION, MILLIONS									TOTAL
1		5.61	2.10	0.36	1.61	1.16	1.07	0.47	1.85	64.18	78.41
2		22.28	4.08	2.04	10.43	2.93	2.12	2.98	4.97	0.0	51.83
3		21.59	11.13	8.40	6.75	6.84	4.53	3.51	8.46	0.0	71.20
4		0.0	5.35	5.30	0.0	0.0	0.0	1.92	2.70	0.0	15.27
	TOTAL	49.48	22.66	16.09	18.78	10.93	7.71	8.88	17.98	64.18	216.70

Figure E-7 (Continued)

TABLE 3 MILEAGE OF ROADWAY BY AREA AND ROADWAY TYPE. *SEMEX2UG:09/29/80*

		AREA TYPE,J							****PRINT3		
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
K		MILES OF ROADWAY									
1		1998	1869	1477	1743	854	512	397	899	31744	41493
2		1749	1527	739	1076	803	600	447	1009	85716	93666
3		9861	5156	4034	5566	3851	3335	4282	9652	155547	201284
4		14103	10219	6320	8569	5502	4445	5377	12124	435517	502176
5		12854	10308	7190	7897	5714	4534	5828	13130	307917	375372
6		84247	64678	47466	58252	36697	29284	33454	75431	1942733	2372242
	TOTAL	124812	93757	67226	83103	53421	42710	49785	112245	2959174	3586233

Figure E-7 (Continued)

```
REGULATION INSTRUCTIONS:

INSTRUCTION ON UNIT 2: Y1957V01RBL
INSTRUCTION ON UNIT 2: Y1957V02RBL
INSTRUCTION ON UNIT 2: Y1957V03RBL
INSTRUCTION ON UNIT 2: Y1957V04RBL
INSTRUCTION ON UNIT 2: Y1957V05RBL
INSTRUCTION ON UNIT 2: Y1957V06RBL
INSTRUCTION ON UNIT 2: Y1957V07RBL
INSTRUCTION ON UNIT 2: Y1957V08RBL
INSTRUCTION ON UNIT 2: Y1984V08R83
INSTRUCTION ON UNIT 2: Y1988V08R80
INSTRUCTION ON UNIT 2: Y1995V08R77
INSTRUCTION ON UNIT 2: Y2005V08R75
INSTRUCTION ON UNIT 2: Y1957V09RBL
INSTRUCTION ON UNIT 2: Y1984V09R83
INSTRUCTION ON UNIT 2: Y1988V09R80
INSTRUCTION ON UNIT 2: Y1995V09R77
INSTRUCTION ON UNIT 2: Y2005V09R75
INSTRUCTION ON UNIT 2: Y1957V10RBL
INSTRUCTION ON UNIT 2: Y1957V11RBL
INSTRUCTION ON UNIT 2: Y1957V12RBL
INSTRUCTION ON UNIT 2: Y1957V13RBL
INSTRUCTION ON UNIT 2: Y1984V13R83
INSTRUCTION ON UNIT 2: Y1988V13R80
INSTRUCTION ON UNIT 2: Y1995V13R78
INSTRUCTION ON UNIT 2: Y2005V13R75
INSTRUCTION ON UNIT 2: Y1957V14RBL
```

Figure E-7 (Continued)

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TABLE 4. 4 EMISSION LEVELS, DBA, (TABLE 4 OF 7)

SEMEX2UG109/29/80

TYPE 7	ACCELERATION MODE				
YEARS>	1974				
0-20 MPH	0.0				
0-30	0.0				
0-40	0.0				
0-50	0.0				
0-60	0.0				
	DECELERATION MODE				
YEARS>	1974				
20-0 MPH	0.0				
30-0	0.0				
40-0	0.0				
50-0	0.0				
60-0	0.0				
	CRUISE MODE				
YEARS>	1974				
<25 MPH	0.0				
25-34	0.0				
35-44	0.0				
45-54	0.0				
>55	0.0				
	IDLE MODE				
YEARS>	1974				
	0.0				

TYPE 8	ACCELERATION MODE				****PRINT4
YEARS>	1974	1984	1988	1995	2005
0-20 MPH	75.10	75.10	74.80	71.80	69.80
0-30	75.60	75.60	75.30	72.40	70.60
0-40	76.20	76.20	75.90	73.30	71.80
0-50	76.80	76.80	76.60	74.40	73.20
0-60	77.70	77.70	77.50	75.80	75.00
	DECELERATION MODE				
YEARS>	1974	1984	1988	1995	2005
20-0 MPH	65.80	65.80	65.50	62.80	61.00
30-0	70.00	70.00	69.80	67.20	65.70
40-0	73.00	73.00	72.70	70.40	69.20
50-0	75.10	75.10	74.90	73.00	71.90
60-0	76.80	76.80	76.70	75.00	74.20
	CRUISE MODE				
YEARS>	1974	1984	1988	1995	2005
<25 MPH	77.20	77.20	76.90	74.20	72.30
25-34	77.20	77.20	76.90	74.30	72.80
35-44	78.10	78.10	77.90	76.00	75.00
45-54	80.20	80.20	80.00	78.50	77.80
>55	81.70	81.70	81.50	80.60	80.20
	IDLE MODE				
YEARS>	1974	1984	1988	1995	2005
	54.00	54.00	54.00	54.00	54.00

Figure E-7 (Continued)

TABLE 4. 5 EMISSION LEVELS, DBA. (TABLE 5 OF 7)

SEMEX2OG(09/29/80

TYPE 9	ACCELERATION MODE				
YEARS>	1974	1984	1988	1995	2005
0-20 MPH	82.70	78.90	75.90	72.90	70.90
0-30	82.80	79.10	76.30	73.50	71.90
0-40	83.00	79.60	77.10	75.10	74.00
0-50	83.40	80.40	78.40	77.00	76.30
0-60	84.00	81.50	80.10	79.20	78.80
DECELERATION MODE					
YEARS>	1974	1984	1988	1995	2005
20-0 MPH	73.90	70.20	67.50	65.00	63.50
30-0	77.30	73.90	71.40	69.40	68.30
40-0	79.60	76.50	74.40	72.90	72.10
50-0	81.40	78.60	77.00	75.80	75.30
60-0	82.70	80.40	79.10	78.40	78.00
CRUISE MODE					
YEARS>	1974	1984	1988	1995	2005
<25 MPH	83.60	79.80	77.00	74.30	72.60
25-34	83.40	80.00	77.70	75.80	74.80
35-44	84.20	81.50	79.90	78.80	78.30
45-54	85.70	83.70	82.60	82.00	81.70
>55	86.80	85.60	85.00	84.70	84.60
IDLE MODE					
YEARS>	1974	1984	1988	1995	2005
	63.00	60.00	57.00	55.00	53.00

TYPE 10	ACCELERATION MODE			****RMIN14	
YEARS>	1974				
0-20 MPH	0.0				
0-30	0.0				
0-40	0.0				
0-50	0.0				
0-60	0.0				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	0.0				
30-0	0.0				
40-0	0.0				
50-0	0.0				
60-0	0.0				
CRUISE MODE					
YEARS>	1974				
<25 MPH	0.0				
25-34	0.0				
35-44	0.0				
45-54	0.0				
>55	0.0				
IDLE MODE					
YEARS>	1974				
	0.0				

Figure E-7 (Continued)

TABLE 4. 7 EMISSION LEVELS, DBA. (TABLE 7 OF 7) *SEMEX2UG109/29/80*

TYPE 13	ACCELERATION MODE				
YEARS>	1974	1984	1988	1995	2005
0-20 MPH	72.30	71.50	68.50	66.50	63.50
0-30	73.90	73.10	70.10	68.10	65.10
0-40	74.40	73.60	70.60	68.60	65.60
0-50	74.70	73.90	70.90	68.90	65.90
0-60	74.90	74.10	71.10	69.10	66.10
DECELERATION MODE					
YEARS>	1974	1984	1988	1995	2005
20-0 MPH	61.50	60.70	57.70	55.70	52.70
30-0	65.90	65.10	62.10	60.10	57.10
40-0	69.00	68.20	65.20	63.20	60.20
50-0	71.40	70.60	67.60	65.60	62.60
60-0	73.40	72.60	69.60	67.60	64.60
CRUISE MODE					
YEARS>	1974	1984	1988	1995	2005
<25 MPH	66.90	66.10	63.10	61.10	58.10
25-34	71.30	70.50	67.50	65.50	62.50
35-44	74.40	73.60	70.60	68.60	65.60
45-54	76.90	76.10	73.10	71.10	68.10
>55	78.90	78.10	75.10	73.10	70.10
IDLE MODE					
YEARS>	1974	1984	1988	1995	2005
	58.90	58.30	55.30	53.30	50.30

TYPE 14	ACCELERATION MODE			***PRINT4	
YEARS>	1974				
0-20 MPH	87.50				
0-30	89.10				
0-40	89.60				
0-50	89.90				
0-60	90.10				
DECELERATION MODE					
YEARS>	1974				
20-0 MPH	75.70				
30-0	80.10				
40-0	83.20				
50-0	85.60				
60-0	87.60				
CRUISE MODE					
YEARS>	1974				
<25 MPH	81.10				
25-34	85.50				
35-44	88.60				
45-54	91.10				
>55	93.10				
IDLE MODE					
YEARS>	1974				
	72.00				

Figure E-7 (Continued)

TABLE 5. 1 SLEEP DISRUPTION METRICS *SEMEX206:09/29/80*

	DAY			NIGHT			TOTAL		
YEAR	LWP	DLWP	HCI	LWP	DLWP	HCI	LWP	DLWP	HCI
1974	8.647E+08	0.0	0.0	2.497E+09	0.0	0.0	3.362E+09	0.0	0.0
1980	1.058E+09	-1.928E+08	-22.30	3.056E+09	-5.594E+08	-22.40	4.114E+09	-7.522E+08	-22.38
1988	1.233E+09	-3.681E+08	-42.57	3.578E+09	-1.081E+09	-43.31	4.811E+09	-1.450E+09	-43.12
1996	1.151E+09	-2.866E+08	-33.14	3.342E+09	-8.447E+08	-33.83	4.493E+09	-1.131E+09	-33.65
2004	1.178E+09	-3.131E+08	-36.20	3.411E+09	-9.142E+08	-36.61	4.589E+09	-1.227E+09	-36.51
2012	1.281E+09	-4.165E+08	-48.16	3.708E+09	-1.211E+09	-48.51	4.990E+09	-1.628E+09	-48.42

Figure E-7 (Continued)

TABLE 6. 1   SLEEP DISRUPTION IN DB BANDS

SEMEX2UG109/29/80

BAND	6	7	8	9	10	11	12	13	14	15
LEVEL, IN DBA>	105.-100.	100.- 95.	95.- 90.	90.- 85.	85.- 80.	80.- 75.	75.- 70.	70.- 65.	65.- 60.	60.- 55.
YEAR										
1974	0.0	0.0	0.0	0.0	3.262E+03	2.308E+06	1.135E+08	6.590E+08	1.241E+09	1.346E+09
1980	0.0	0.0	0.0	0.0	2.194E+03	2.107E+06	1.360E+08	8.107E+08	1.529E+09	1.636E+09
1988	0.0	0.0	0.0	0.0	2.817E+03	1.972E+06	1.072E+08	8.046E+08	1.858E+09	2.040E+09
1996	0.0	0.0	0.0	0.0	3.632E+03	1.502E+06	2.958E+07	4.693E+08	1.755E+09	2.238E+09
2004	0.0	0.0	0.0	0.0	4.631E+03	1.748E+06	1.756E+07	3.525E+08	1.688E+09	2.529E+09
2012	0.0	0.0	0.0	0.0	5.873E+03	2.184E+06	2.045E+07	3.630E+08	1.767E+09	2.837E+09

Figure E-7 (Continued)

TABLE 7. 1 1974 POPULATION EXPOSED TO SLEEP DISRUPTION, BY EVENT BIN AND DB BIN

SEMEX206(09/29/80)

DB BIN #	6	7	8	9	10	11	12	13	14	15	TOTALS BY EVENT BIN
LEVEL, IN DBA	105.-100.	100.- 95.	95.- 90.	90.- 85.	85.- 80.	80.- 75.	75.- 70.	70.- 65.	65.- 60.	60.- 55.	
# OF EVENTS (≤ #)											
>0-1.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.1544	0.0	0.0	0.0	0.0	0.0	0.0	5.300E+02	1.316E+04	6.027E+04	1.056E+05	1.795E+05
4.6416	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	2.554E+02	2.168E+05	3.436E+06	9.633E+06	1.372E+07	1.280E+07	3.981E+07
21.544	0.0	0.0	0.0	0.0	0.0	4.384E+02	2.266E+05	3.069E+06	6.767E+06	9.783E+06	1.985E+07
46.416	0.0	0.0	0.0	0.0	0.0	1.573E+03	3.323E+05	3.662E+06	6.147E+06	7.005E+06	1.715E+07
100.00	0.0	0.0	0.0	0.0	3.601E+02	2.806E+05	1.166E+07	4.900E+07	9.057E+07	1.051E+08	2.566E+08
215.44	0.0	0.0	0.0	0.0	6.929E+02	5.100E+05	1.997E+07	9.436E+07	1.798E+08	2.129E+08	5.075E+08
464.16	0.0	0.0	0.0	0.0	1.493E+03	6.793E+05	3.903E+07	1.681E+08	2.956E+08	3.204E+08	8.238E+08
1000.0	0.0	0.0	0.0	0.0	4.608E+02	2.995E+05	1.793E+07	1.047E+08	1.711E+08	1.721E+08	4.661E+08
2154.4	0.0	0.0	0.0	0.0	0.0	3.240E+05	2.071E+07	2.015E+08	3.451E+08	3.518E+08	9.194E+08
4641.6	0.0	0.0	0.0	0.0	0.0	0.0	4.881E+05	3.041E+07	1.461E+08	1.707E+08	3.477E+08
10000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>10000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS BY DB BIN	0.0	0.0	0.0	0.0	3.262E+03	2.312E+06	1.138E+08	6.643E+08	1.255E+09	1.363E+09	
GRAND TOTAL											3.398E+09

Figure E-7 (Continued)

TABLE 7. 2   1980 POPULATION EXPOSED TO SLEEP DISRUPTION, BY EVENT BIN AND DB BIN

SEMEX20G109/29/80

DB BIN # / BIN DBA	6	7	8	9	10	11	12	13	14	15	TOTALS BY
	EVENT BIN										
	105.-100.	100.- 95.	95.- 90.	90.- 85.	85.- 80.	80.- 75.	75.- 70.	70.- 65.	65.- 60.	60.- 55.	
# OF EVENTS (≤ #)											
>0-1.	0.0	0.0	0.0	0.0	0.0	0.0	3.744E+02	1.342E+04	7.097E+04	1.257E+05	2.105E+05
2.1544	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.6416	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	1.718E+02	1.594E+05	3.772E+06	1.108E+07	1.521E+07	1.219E+07	4.242E+07
21.544	0.0	0.0	0.0	0.0	0.0	2.985E+02	1.726E+05	3.265E+06	6.352E+06	8.085E+06	1.787E+07
46.416	0.0	0.0	0.0	0.0	0.0	1.010E+03	3.705E+05	4.684E+06	9.190E+06	1.150E+07	2.574E+07
100.00	0.0	0.0	0.0	0.0	2.422E+02	2.728E+05	1.390E+07	5.956E+07	1.102E+08	1.259E+08	3.098E+08
215.44	0.0	0.0	0.0	0.0	4.660E+02	4.767E+05	2.362E+07	1.142E+08	2.179E+08	2.541E+08	6.104E+08
464.16	0.0	0.0	0.0	0.0	1.004E+03	6.514E+05	4.702E+07	2.058E+08	3.618E+08	3.880E+08	1.003E+09
1000.0	0.0	0.0	0.0	0.0	0.0	5.929E+03	1.767E+06	5.119E+07	9.875E+07	1.003E+08	2.520E+08
2154.4	0.0	0.0	0.0	0.0	3.099E+02	5.430E+05	4.452E+07	2.777E+08	4.207E+08	4.041E+08	1.148E+09
4641.6	0.0	0.0	0.0	0.0	0.0	9.245E+02	1.184E+06	8.834E+07	3.025E+08	3.496E+08	7.416E+08
10000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>10000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS BY DB BIN	0.0	0.0	0.0	0.0	2.194E+03	2.111E+06	1.363E+08	8.159E+08	1.543E+09	1.654E+09	
GRAND TOTAL											4.151E+09

Figure E-7 (Continued)

TABLE 7. 3 1988 POPULATION EXPOSED TO SLEEP DISRUPTION,
BY EVENT BIN AND DB BIN

SEMEX20G109/29/80

DB BIN #	6	7	8	9	10	11	12	13	14	15	TOTALS BY EVENT BIN
LEVEL, IN DBA	105.-100.	100.- 95.	95.- 90.	90.- 85.	85.- 80.	80.- 75.	75.- 70.	70.- 65.	65.- 60.	60.- 55.	
# OF EVENTS (≤ #)											
>0-1.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.1544	0.0	0.0	0.0	0.0	0.0	0.0	4.898E+02	1.242E+04	7.151E+04	1.465E+05	2.309E+05
4.6416	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	2.206E+02	1.792E+05	3.044E+06	1.100E+07	1.797E+07	1.562E+07	4.781E+07
21.544	0.0	0.0	0.0	0.0	0.0	3.805E+02	1.917E+05	2.725E+06	7.172E+06	9.234E+06	1.932E+07
46.416	0.0	0.0	0.0	0.0	0.0	0.0	6.892E+03	2.845E+05	2.073E+06	4.184E+06	6.548E+06
100.00	0.0	0.0	0.0	0.0	3.110E+02	2.387E+05	1.031E+07	5.406E+07	1.203E+08	1.370E+08	3.219E+08
215.44	0.0	0.0	0.0	0.0	5.984E+02	3.608E+05	1.317E+07	6.713E+07	1.520E+08	1.681E+08	4.006E+08
464.16	0.0	0.0	0.0	0.0	1.289E+03	6.491E+05	4.036E+07	2.170E+08	4.560E+08	4.870E+08	1.201E+09
1000.0	0.0	0.0	0.0	0.0	0.0	8.127E+03	1.542E+06	6.804E+07	1.996E+08	2.566E+08	5.258E+08
2154.4	0.0	0.0	0.0	0.0	3.979E+02	2.769E+05	1.743E+07	1.705E+08	3.717E+08	3.560E+08	9.157E+08
4641.6	0.0	0.0	0.0	0.0	0.0	2.621E+05	2.150E+07	2.218E+08	5.553E+08	6.447E+08	1.444E+09
10000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>10000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS BY DB BIN	0.0	0.0	0.0	0.0	2.817E+03	1.975E+06	1.076E+08	8.124E+08	1.882E+09	2.079E+09	
GRAND TOTAL											4.883E+09

Figure E-7 (Continued)

TABLE 7. 4 1996 POPULATION EXPOSED TO SLEEP DISRUPTION, BY EVENT BIN AND DB BIN

SEMEX206:09/29/80

DB BIN #	6	7	8	9	10	11	12	13	14	15	TOTALS BY EVENT BIN
LEVEL, IN DBA	105.-100.	100.- 95.	95.- 90.	90.- 85.	85.- 80.	80.- 75.	75.- 70.	70.- 65.	65.- 60.	60.- 55.	
# OF EVENTS ($ #)											
>0-1.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.1544	0.0	0.0	0.0	0.0	0.0	0.0	6.379E+02	8.595E+03	3.654E+04	1.233E+05	1.691E+05
4.6416	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	2.844E+02	1.518E+05	8.968E+05	4.852E+06	1.201E+07	1.416E+07	3.208E+07
21.544	0.0	0.0	0.0	0.0	0.0	4.534E+04	4.680E+05	2.447E+06	8.824E+06	1.227E+07	2.405E+07
46.416	0.0	0.0	0.0	0.0	0.0	0.0	6.976E+03	8.568E+04	1.461E+06	4.019E+06	5.575E+06
100.00	0.0	0.0	0.0	0.0	0.0	9.832E+03	2.366E+05	2.649E+06	1.711E+07	2.348E+07	4.348E+07
215.44	0.0	0.0	0.0	0.0	8.833E+02	2.800E+05	3.921E+06	4.544E+07	1.816E+08	2.385E+08	4.697E+08
464.16	0.0	0.0	0.0	0.0	2.892E+02	1.943E+05	3.208E+06	4.309E+07	2.166E+08	3.198E+08	5.828E+08
1000.0	0.0	0.0	0.0	0.0	1.662E+03	3.582E+05	8.181E+06	1.078E+08	3.852E+08	4.926E+08	9.941E+08
2154.4	0.0	0.0	0.0	0.0	5.130E+02	1.146E+05	4.351E+06	8.643E+07	3.035E+08	3.486E+08	7.430E+08
4641.6	0.0	0.0	0.0	0.0	0.0	3.491E+05	8.482E+06	1.823E+08	6.536E+08	8.245E+08	1.669E+09
10000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>10000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS BY DB BIN	0.0	0.0	0.0	0.0	3.632E+03	1.503E+06	2.975E+07	4.751E+08	1.780E+09	2.278E+09	
GRAND TOTAL											4.564E+09

Figure E-7 (Continued)

TABLE 7. 5 2004 POPULATION EXPOSED TO SLEEP DISRUPTION,
BY EVENT BIN AND DB BIN

SEMEX206109/29/80

DB BIN #	6	7	8	9	10	11	12	13	14	15	TOTALS BY EVENT BIN
LEVEL, IN DBA	105.-100.	100.- 95.	95.- 90.	90.- 85.	85.- 80.	80.- 75.	75.- 70.	70.- 65.	65.- 60.	60.- 55.	
# OF EVENTS (≤ #)											
>0-1.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.1544	0.0	0.0	0.0	0.0	0.0	0.0	8.190E+02	1.000E+04	2.614E+04	1.055E+05	1.425E+05
4.6416	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	0.0	1.027E+03	8.191E+04	1.770E+05	1.313E+06	2.750E+06	4.322E+06
21.544	0.0	0.0	0.0	0.0	3.626E+02	2.407E+05	1.166E+06	4.834E+06	1.677E+07	2.634E+07	4.935E+07
46.416	0.0	0.0	0.0	0.0	0.0	0.0	1.153E+04	5.503E+04	1.252E+06	4.020E+06	5.339E+06
100.00	0.0	0.0	0.0	0.0	0.0	2.588E+03	1.011E+05	3.733E+05	7.348E+06	1.710E+07	2.492E+07
215.44	0.0	0.0	0.0	0.0	5.114E+02	1.717E+05	1.229E+06	1.181E+07	9.461E+07	1.814E+08	2.892E+08
464.16	0.0	0.0	0.0	0.0	9.838E+02	3.745E+05	2.639E+06	2.844E+07	2.256E+08	4.136E+08	6.706E+08
1000.0	0.0	0.0	0.0	0.0	2.119E+03	3.991E+05	3.967E+06	6.199E+07	3.245E+08	5.227E+08	9.135E+08
2154.4	0.0	0.0	0.0	0.0	6.542E+02	1.043E+05	1.835E+06	4.798E+07	2.293E+08	3.055E+08	5.847E+08
4641.6	0.0	0.0	0.0	0.0	0.0	4.567E+05	6.553E+06	1.975E+08	8.021E+08	1.080E+09	2.087E+09
10000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
>10000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS BY DB BIN	0.0	0.0	0.0	0.0	4.631E+03	1.750E+06	1.759E+07	3.532E+08	1.703E+09	2.553E+09	
GRAND TOTAL											4.629E+09

Figure E-7 (Continued)

SEMEX206109/29/80

TABLE 7. 6 2012 POPULATION EXPOSED TO SLEEP DISRUPTION, BY EVENT BIN AND DB BIN

DB BIN #	6	7	8	9	10	11	12	13	14	15	TOTALS BY EVENT BIN
LEVEL, IN DBA	105.-100.	100.- 95.	95.- 90.	90.- 85.	85.- 80.	80.- 75.	75.- 70.	70.- 65.	65.- 60.	60.- 55.	
# OF EVENTS (≤ #)											
>0-1.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.1544	0.0	0.0	0.0	0.0	0.0	0.0	1.045E+03	1.275E+04	2.888E+04	1.004E+05	1.431E+05
4.6416	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	0.0	1.231E+03	9.850E+04	2.108E+05	1.161E+06	2.939E+06	4.411E+06
21.544	0.0	0.0	0.0	0.0	4.599E+02	2.991E+05	1.450E+06	4.608E+06	1.650E+07	2.825E+07	5.110E+07
46.416	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.00	0.0	0.0	0.0	0.0	0.0	2.068E+03	9.528E+04	3.207E+05	4.230E+06	1.548E+07	2.013E+07
215.44	0.0	0.0	0.0	0.0	6.484E+02	2.125E+05	1.448E+06	7.891E+06	7.665E+07	1.791E+08	2.653E+08
464.16	0.0	0.0	0.0	0.0	1.248E+03	4.309E+05	2.888E+06	1.616E+07	1.511E+08	3.527E+08	5.233E+08
1000.0	0.0	0.0	0.0	0.0	2.687E+03	5.312E+05	4.923E+06	5.807E+07	3.495E+08	6.392E+08	1.052E+09
2154.4	0.0	0.0	0.0	0.0	0.0	1.715E+04	5.545E+05	2.324E+07	1.294E+08	1.989E+08	3.521E+08
4641.6	0.0	0.0	0.0	0.0	8.296E+02	6.931E+05	8.140E+06	2.454E+08	7.936E+08	9.852E+08	2.033E+09
10000.	0.0	0.0	0.0	0.0	0.0	0.0	8.746E+05	8.046E+06	2.564E+08	4.580E+08	7.233E+08
>10000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS BY DB BIN	0.0	0.0	0.0	0.0	5.873E+03	2.187E+06	2.047E+07	3.640E+08	1.779E+09	2.860E+09	
GRAND TOTAL											5.025E+09

Figure E-7 (Continued)

TABLE 8. 1 VEHICLE POPULATION BY TYPE, FOR EACH NET YEAR. (TABLE 1 OF 1)

SEMEX20G109/29/80

TYPE>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	TOTAL
CYLINDERS	8	6	6&8	4	4	6&8									
ENGINE	GAS	GAS	GAS	GAS	GAS	GAS	DIESEL								
TRANS-MISSION	AUTO-MATIC	AUTO-MATIC	MAN-UAL	AUTO-MATIC	MAN-UAL	----	----	----	----	----	----	----	----	----	
VEH. TYPE>	PC	PC	PC	PC&LT	PC&LT	LT TRK	PC&LT	MED TRK	HVY TRK	IC BUS	TR BUS	SCH BUS	UN MTCY	MD MTCY	
UNIT	MILLIONS									TENS OF THOUSANDS			MILLIONS		
YEAR															
1974	58.68	17.83	2.10	7.76	20.13	19.01	0.06	2.41	1.51	2.06	6.95	35.68	4.11	0.56	134.61
1980	63.02	20.99	2.63	11.03	22.41	25.97	2.54	2.84	1.78	1.41	10.69	50.03	2.59	0.35	156.77
1988	31.21	30.47	3.45	32.06	26.52	27.46	26.33	3.56	2.23	1.51	12.09	76.84	2.99	0.41	187.59
1996	3.62	41.70	0.96	51.52	33.83	29.53	46.92	4.18	2.62	1.50	11.41	96.03	3.51	0.48	219.45
2004	0.02	49.88	0.01	61.91	40.38	34.99	56.53	4.89	3.07	1.50	11.46	114.89	4.10	0.56	257.62
2012	0.0	58.43	0.0	72.52	47.29	40.99	66.21	5.73	3.59	1.50	11.46	133.81	4.81	0.66	301.69

Figure E-7 (Continued)

TABLE 9. 1 POPULATION GROWTH FACTOR FOR EACH NET YEAR,(TABLE 1 OF 1) *SEMEX20G109/29/80*

		AREA TYPE,J							***PRNI10		
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
YEAR	VARIABLE	POP(YEAR)/POP(BASELINE)									
1974		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
1980		1.08	1.07	1.07	1.02	1.02	1.02	1.02	1.02	1.12	
1988		1.19	1.19	1.19	1.05	1.05	1.05	1.05	1.05	1.27	
1996		1.31	1.31	1.31	1.07	1.07	1.07	1.07	1.07	1.41	
2004		1.42	1.42	1.42	1.10	1.10	1.10	1.10	1.10	1.55	
2012		1.53	1.54	1.54	1.12	1.12	1.12	1.12	1.12	1.69	

Figure E-7 (Continued)

TABLE 10. 1 POPULATION BY AREA TYPE FOR EACH NET YEAR.(TABLE 1 OF 1)   *SEMEX2UG109/29/80*

		AREA TYPE,J							***PHN110		
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
YEAR	VARIABLE	POPULATION, IN MILLIONS									
1974		49.48	22.65	16.09	18.78	10.93	7.71	8.88	17.98	64.18	
1980		53.60	24.24	17.22	19.16	11.15	7.87	9.06	18.36	72.13	
1988		59.11	26.92	19.12	19.65	11.44	8.07	9.29	18.82	81.62	
1996		64.68	29.59	21.02	20.13	11.72	8.27	9.52	19.28	90.61	
2004		70.27	32.25	22.90	20.60	11.99	8.47	9.75	19.75	99.42	
2012		75.86	34.90	24.79	21.08	12.27	8.67	9.98	20.22	108.24	

Figure E-7 (Continued)

TABLE 11. 1   LIGHT VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 1)

VEHICLE TYPE >							****PRNT(I)	
	1	2	3	4	5	6	7	
MODEL YEAR Y	VEHICLE BREAKDOWN, VBD(I).							SUM
1957	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1958	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1959	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1960	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1961	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1962	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1963	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1964	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1965	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1966	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1967	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1968	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1969	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1970	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1971	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1972	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1973	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1974	0.4673	0.1420	0.0167	0.0618	0.1603	0.1514	0.0005	1.0000
1975	0.4579	0.1388	0.0170	0.0612	0.1535	0.1709	0.0007	1.0000

Figure E-7 (Continued)

TABLE 11. 2 LIGHT VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 2)

VEHICLE TYPE > / MODEL YEAR Y	****PRNT11 VEHICLE BREAKDOWN, VBD(I). 1	2	3	4	5	6	7	SUM
1976	0.4484	0.1356	0.0173	0.0606	0.1468	0.1905	0.0008	1.0000
1977	0.4390	0.1324	0.0176	0.0600	0.1400	0.2100	0.0010	1.0000
1978	0.3929	0.1390	0.0185	0.0812	0.1412	0.2000	0.0271	1.0000
1979	0.3468	0.1456	0.0194	0.1025	0.1425	0.1900	0.0532	1.0000
1980	0.3006	0.1522	0.0203	0.1237	0.1437	0.1800	0.0794	1.0000
1981	0.2545	0.1588	0.0212	0.1450	0.1450	0.1700	0.1055	1.0000
1982	0.2084	0.1655	0.0220	0.1662	0.1462	0.1600	0.1316	1.0000
1983	0.1623	0.1721	0.0229	0.1875	0.1475	0.1500	0.1577	1.0000
1984	0.1161	0.1787	0.0238	0.2087	0.1487	0.1400	0.1839	1.0000
1985	0.0700	0.1853	0.0247	0.2300	0.1500	0.1300	0.2100	1.0000
1986	0.0560	0.1892	0.0198	0.2348	0.1531	0.1327	0.2144	1.0000
1987	0.0420	0.1931	0.0148	0.2396	0.1563	0.1354	0.2188	1.0000
1988	0.0280	0.1969	0.0099	0.2444	0.1594	0.1382	0.2232	1.0000
1989	0.0140	0.2008	0.0049	0.2492	0.1626	0.1409	0.2276	1.0000
1990	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
1991	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
1992	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
1993	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
1994	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
1995	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000

Figure E-7 (Continued)

TABLE 11. 3   LIGHT VEHICLE BREAKDOWN RATIOS FOR 1957-2013.(TABLE 3)

VEHICLE TYPE >	****PRN(I)							
	1	2	3	4	5	6	7	
MODEL YEAR V	VEHICLE BREAKDOWN, VBD(I).							SUM
1996	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
1997	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
1998	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
1999	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2000	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2001	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2002	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2003	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2004	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2005	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2006	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2007	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2008	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2009	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2010	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2011	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2012	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000
2013	0.0	0.2047	0.0	0.2541	0.1657	0.1436	0.2320	1.0000

Figure E-7 (Continued)

```
F64-LEVEL LINKAGE EDITOR OPTIONS SPECIFIED   NONE
         DEFAULT OPTION(S) USED -  SIZE=(196608,65536)
****MAIN       DOES NOT EXIST BUT HAS BEEN ADDED TO DATA SET
AUTHORIZATION CODE IS          0.



$*SEMEX20G:09/29/80*   $
2000000
 6
1974. 1980. 1988. 1996. 2004. 2012.    0.    0.    0.    0.
   0.    0.    0.    0.    0.    0.    0.    0.    0.    0.
   0.    0.    0.    0.    0.    0.    0.    0.    0.    0.
   0.    0.    0.    0.    0.    0.    0.    0.    0.    0.

 0.336E+10     0.411E+10     0.481E+10     0.449E+10     0.459E+10     0.499E+10     0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0
 0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0

 0.100E+10   0.300E+01   0.300E+10   0.130E+11   0.100E+02  -0.190E+03
```

Figure E-7 (Continued)

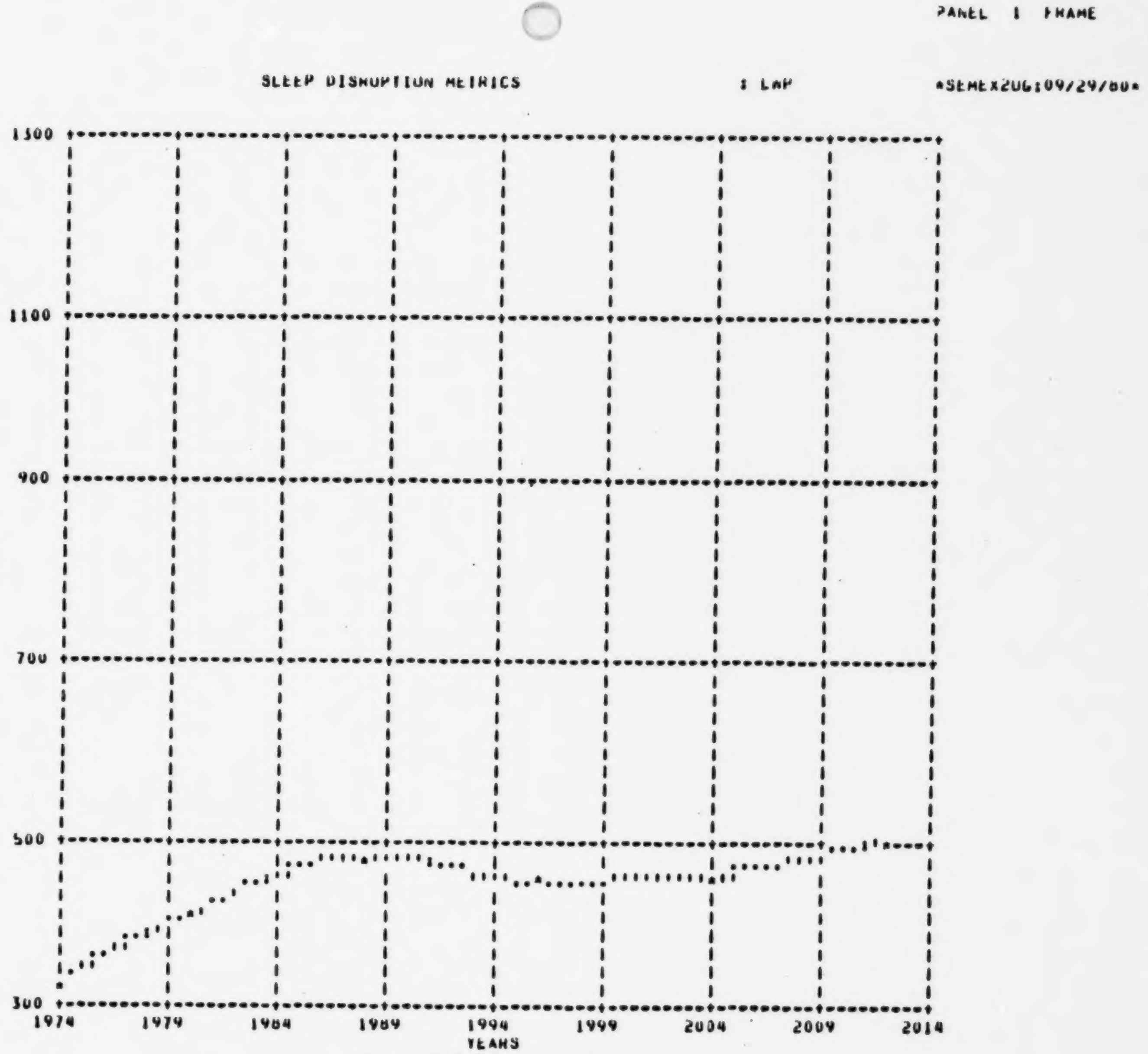

Figure E-7 (Continued)

APPENDIX F

MODIFICATIONS TO ALLOW THE NRTNEM TO BE RUN UNDER DIFFERENT ACCOUNT NUMBERS AND USER-IDS

Access to the files of the NRTNEM is protected through the Resource Access Control Facility (RACF) system. This restricts the running of the model to only those users who have been given proper authority. A description of the RACF system is given in Appendix G of the NCC-IBM User's Guide, and an RACF training manual is available on-line through the USE $PUBLIC.RACF command. The following paragraphs describe the different access levels and explain how access to the model can be obtained for users under the MUSN account.

There are four levels of access that can be authorized for a user (userid) or group (account code) for each protected dataset. They are as follows, from most to least restrictive: NONE, READ, UPDATE, and ALTER. With NONE authority the user or group cannot access the dataset at all. READ authority allows the user or group to see what is in the dataset but does not permit them to modify the file. To be able to both READ and modify the dataset, the user or group must have UPDATE access. If this access is given to all protected datasets in the NRTNEM, the user or group can access the datasets, modify and save them if desired, and run the model. ALTER authority includes all the characteristics of UPDATE, plus it allows the user or group to make changes in the RACF protection on the dataset.

Six of the NRTNEM computer files are protected. These six datasets are:

```
CN.EPADYN.S2KC.TRAWO
CN.EPADYN.S2KC.BUILD
CN.EPADYN.S2KC.RNMEXE9R
CN.EPADYN.S2KC.$RNMSUF.CLIST
CN.EPADYN.S2KC.WYLIB
CN.EPADYN.S2KC.NLDICT
```

At the start of this project, only userid EPADYN was able to run the model. A universal access of READ was in effect for each of these datasets, so that any user could read the files but could not change them or run the model. In order to give UPDATE access to group MUSN for each of these files, the PERMIT command was used in the TSO system. UPDATE access was specified for this account for each individual dataset by userid EPADYN, who as the owner of each of them, has sufficient authority to do so. The following is an example showing how MUSN was given UPDATE access to file TRAWO.

```
PERMIT 'CN.EPADYN.S2KC.TRAWO'  ID(MUSN)  ACCESS(UPDATE)
```

The same command was used for each of the protected datasets, so that all users of group MUSN are now able to run and modify the model. A trial run of the NRTNEM was made with userid EPASRD in group MUSN to verify that the model could be run under this account code. A change in one of the datasets was also made under this account to test whether modifications to these files could be made through MUSN. Both tests were successful.

The printout on the following pages was obtained in TSO under userid EPADYN and account S2KC with the command LISTDSD AUTHUSER. Among the information given is the owner, universal access, creation group, and the access level for each user who has been given a specific access level. This command automatically prints out the information for each protected dataset under userid EPADYN. Since MUSN does not have ALTER authority, the LISTDSD command could not be used with that account number to obtain this information on the NRTNEM datasets. Also, any further changes in RACF protection to these datasets would have to be performed under userid EPADYN, account S2KC.

The two manuals mentioned at the beginning of this section can be used to obtain other commands that deal with RACF protection. They also contain other options that can be used with the PERMIT command. The documentation given in this report has summarized what is necessary to know in giving an account or userid access to the protected NRTNEM files.

```
INFORMATION FOR DATASET CN.EPADYN.S2KC.$RNMSUF.CLIST

LEVEL  OWNER    AUDITING  UNIVERSAL ACCESS
-----  -------- --------  ----------------
 00    EPADYN   FAILURES        READ

YOUR ACCESS  CREATION GROUP  DATASET TYPE
-----------  --------------  ------------
NONE GIVEN       S2KC          NON-VSAM

VOLUMES ON WHICH DATASET RESIDES
--------------------------------
USER67 215154 227129 239116
249021 258082 278248

  USER    ACCESS   ACCESS COUNT
 -------- -------  ------------
EPADYO     READ       00019
MUSN      UPDATE      00013


INFORMATION FOR DATASET CN.EPADYN.S2KC.BUILD

LEVEL  OWNER    AUDITING  UNIVERSAL ACCESS
-----  -------- --------  ----------------
 00    EPADYN   FAILURES        READ

YOUR ACCESS  CREATION GROUP  DATASET TYPE
-----------  --------------  ------------
NONE GIVEN       S2KC          NON-VSAM

VOLUMES ON WHICH DATASET RESIDES
--------------------------------
USER68 215207 302134

  USER    ACCESS   ACCESS COUNT
 -------- -------  ------------
EPADYO     READ       00020
MUSN      UPDATE      00010
```

Figure F-1. RACF Information On NRTNEM Protected Files

```
INFORMATION FOR DATASET CN.EPADYN.S2KC.NLDICT

LEVEL   OWNER    AUDITING  UNIVERSAL ACCESS
-----  -------   --------  ----------------
 00    EPADYN    FAILURES        READ

YOUR ACCESS  CREATION GROUP  DATASET TYPE
-----------  --------------  ------------
NONE GIVEN        S2KC         NON-VSAM

VOLUMES ON WHICH DATASET RESIDES
--------------------------------
USER76 180019 217187 109180

  USER     ACCESS   ACCESS COUNT
--------  -------   ------------
EPADYO    UPDATE       00011
MUSN      UPDATE       00001


INFORMATION FOR DATASET CN.EPADYN.S2KC.RNMEXE9R

LEVEL   OWNER    AUDITING  UNIVERSAL ACCESS
-----  -------   --------  ----------------
 00    EPADYN    FAILURES        READ

YOUR ACCESS  CREATION GROUP  DATASET TYPE
-----------  --------------  ------------
NONE GIVEN        S2KC         NON-VSAM

VOLUMES ON WHICH DATASET RESIDES
--------------------------------
225113 235200 243143 255200
066033 143031

  USER     ACCESS   ACCESS COUNT
--------  -------   ------------
EPADYO     READ        00016
MUSN      UPDATE       00006
```

Figure F-1. Continued

```
INFORMATION FOR DATASET CN.EPADYN.S2KC.TRAWO

LEVEL  OWNER    AUDITING  UNIVERSAL ACCESS
-----  -------  --------  ----------------
 00    EPADYN   FAILURES        READ

YOUR ACCESS  CREATION GROUP  DATASET TYPE
-----------  --------------  ------------
NONE GIVEN        S2KC          NON-VSAM

VOLUMES ON WHICH DATASET RESIDES
--------------------------------
511126

  USER     ACCESS   ACCESS COUNT
--------   ------   ------------
MUSN       UPDATE      00000


INFORMATION FOR DATASET CN.EPADYN.S2KC.WYLIB

LEVEL  OWNER    AUDITING  UNIVERSAL ACCESS
-----  -------  --------  ----------------
 00    EPADYN   FAILURES        READ

YOUR ACCESS  CREATION GROUP  DATASET TYPE
-----------  --------------  ------------
NONE GIVEN        S2KC          NON-VSAM

VOLUMES ON WHICH DATASET RESIDES
--------------------------------
USER69 007073 119028 258160

  USER     ACCESS   ACCESS COUNT
--------   ------   ------------
EPADYO     UPDATE      00048
MUSN       UPDATE      00010
```

Figure F-1. Continued

APPENDIX G

Modifications of the General Adverse Response Model to Incorporate Sound Level Changes with Vehicle Age

The NRTNEM can be used to evaluate changes in noise impact resulting from vehicle sound level degradation as the vehicle ages. (see Appendix B, "Programmer's Manual" for details on the degradation features and the program modifications required to perform runs). Vehicle degradation runs are performed using similar procedures as described for the GAR runs in Appendix E. However, vehicle degradation runs can be made for medium and heavy duty trucks (vehicle types 8 and 9) only. Additionally, a maximum of three regulation instruction lines can be used for both vehicle types. If more are specified, the degradation factors will be ignored in the noise impact calculations. Also, if only the baseline regulation levels are used for these two vehicle types, there will be no degradation influence on the noise impact.

Figure G-1 shows the regulation instruction file that the user prepared under WYLBUR and named RIFBL. The TSO conversation for submitting the job is shown in Figure G-2. Figure G-3 shows the output generated from a vehicle degradation run.

When vehicle degradation runs are performed using regulation levels, the following heading will be displayed after the Regulation Instruction File printout:

```
IAGE   L   M   LEVEL   NI   DEGFAC(IAGE,L,M,LEVEL,NI)  .NE.O.O
```

The headings stand for, respecitvely, the age of the vehicle, the speed range, the mode, the regulation level, the vehicle type (NI(1) = vehicle type 8, NI(2) = vehicle type 9), and the corresponding noise level degradation. (See Appendix B, "Programmer's Manual" for a more detailed explanation of these variables.)

```
REGULATION INSTRUCTION FILE:

INSTRUCTION ON UNIT 2: Y1957V01RBL
INSTRUCTION ON UNIT 2: Y1957V02RBL
INSTRUCTION ON UNIT 2: Y1957V03RBL
INSTRUCTION ON UNIT 2: Y1957V04RBL
INSTRUCTION ON UNIT 2: Y1957V05RBL
INSTRUCTION ON UNIT 2: Y1957V06RBL
INSTRUCTION ON UNIT 2: Y1957V07RBL
INSTRUCTION ON UNIT 2: Y1957V08RBL
INSTRUCTION ON UNIT 2: Y1978V08R83
INSTRUCTION ON UNIT 2: Y1982V08R80
INSTRUCTION ON UNIT 2: Y1957V09RBL
INSTRUCTION ON UNIT 2: Y1978V09R83
INSTRUCTION ON UNIT 2: Y1982V09RQA
INSTRUCTION ON UNIT 2: Y1957V10RBL
INSTRUCTION ON UNIT 2: Y1957V11RBL
INSTRUCTION ON UNIT 2: Y1957V12RBL
INSTRUCTION ON UNIT 2: Y1957V13RBL
INSTRUCTION ON UNIT 2: Y1957V14RBL
```

Figure G-1. Regulation Instruction File Used For Vehicle Degradation Runs

```
EXEC $RNMSUB
>>>>NATIONAL ROADWAY NOISE MODEL VERSION 9R 04/23/81 11:24:12
S1. VERSION(SEM OR GAR)    :GAR
S3. ENTER EDITING COMMANDS.
?c 13400 /111111111111/110001111000/
13400 IPRINT   :110001111000
?17500 * THE MAIN FILE FOR THIS RUN IS DEGFAC1, WHICH IS THE SAME AS
?17600 * VARNET9R WITH DEGRADATION FEATURES ADDED.
?
S4.5 REGULATION INSTRUCTION FILE:RIF89
S5. ENTER VEH.GROWTH F. FILE     :VGFS001
S6. ENTER NET-YEARS(MAX 9):'1974,1980,1985,1990,1995,2000,2005,2010,2013'
S7. ENTER -PGMRNAME-RUNNAME -TIME-PRTY-JOBID-COPY-ROOM-PLOT-.
LIMITS :  -XXXXXXXX-XXXXXXXX-XX---X----XX----X----XXXX-XXX-.
          :OUTMAN   DEGFAC1
END OF DATA
END OF DATA
S8. COMMAND:
?
SAVED
JOB EPADYNNN(JOB01478) SUBMITTED
DELETE SUBMITTED JCL FILE? Y OR N:Y
ENTRY (A) CN.EPADYN.S2KC.RNMTEMP.CNTL DELETED
READY
```

Figure G-2. TSO Conversation for Submitting Vehicle Degradation Runs

```
********************************************************************
*                                                                  *
*      ENVIRONMENTAL PROTECTION AGENCY OF THE UNITED STATES        *
*              OFFICE OF NOISE ABATEMENT AND CONTROL               *
*                                                                  *
*          NATIONAL ROADWAY TRAFFIC NOISE EXPOSURE MODEL           *
*               GENERAL ADVERSE RESPONSE MODEL                     *
*                                                                  *
*                                                                  *
*                                                                  *
*                                                                  *
********************************************************************
*                                                                  *
*                   DATE OF RUN : 04/23/81                         *
*             NAME OF PROGRAMMER : COTHAN                          *
*                   NAME OF RUN : DEGFAC1                          *
*   REGULATION INSTRUCTION FILE : CN.EPADYN.S2KC.RIF80             *
*            NAME OF DATAFILE 3 : CN.EPADYN.S2KC.WYLIB(MILE)       *
*                               : CN.EPADYN.S2KC.WYLIB(PERCNT)     *
*                               : CN.EPADYN.S2KC.WYLIB(FIMP)       *
*                               : CN.EPADYN.S2KC.WYLIB(FLOMIXBL)   *
*    VEHICLE GROWTH FACTOR FILE : CN.EPADYN.S2KC.WYLIB(VGFS001)    *
*                                                                  *
********************************************************************
*                              COMMENTS                            *
*                                                                  *
*                                                                  *
* THE MAIN FILE FOR THIS RUN IS DEGFAC1, WHICH IS THE SAME AS      *
*                                                                  *
* VARNETOR WITH DEGRADATION FEATURES ADDED.                        *
*                                                                  *
*                                                                  *
*                                                                  *
********************************************************************
```

Figure G-3. Output From Vehicle Degradation Runs

```
     TABLE  1  LISTING OF CONTROL STRINGS AND NET YEARS                *DEGFAC1:04/23/81*

     DUMP CONTROL STRING IS 000000000000

     PRINT CONTROL STRING IS 110001111000

 ICONT LOGIC CONTROL STRING IS 000100000000

     THERE ARE  9 NET YEARS:
     1974,1980,1985,1990,1995,2000,2005,2010,2013.



    REGULATION INSTRUCTION FILE:


INSTRUCTION ON UNIT 2: Y1957V01RBL
INSTRUCTION ON UNIT 2: Y1957V02RBL
INSTRUCTION ON UNIT 2: Y1957V03RBL
INSTRUCTION ON UNIT 2: Y1957V04RBL
INSTRUCTION ON UNIT 2: Y1957V05RBL
INSTRUCTION ON UNIT 2: Y1957V06RBL
INSTRUCTION ON UNIT 2: Y1957V07RBL
INSTRUCTION ON UNIT 2: Y1957V08RBL
INSTRUCTION ON UNIT 2: Y1978V08R83
INSTRUCTION ON UNIT 2: Y1982V08R80
INSTRUCTION ON UNIT 2: Y1957V09RBL
INSTRUCTION ON UNIT 2: Y1978V09R83
INSTRUCTION ON UNIT 2: Y1982V09RQA
INSTRUCTION ON UNIT 2: Y1957V10RBL
INSTRUCTION ON UNIT 2: Y1957V11RBL
INSTRUCTION ON UNIT 2: Y1957V12RBL
INSTRUCTION ON UNIT 2: Y1957V13RBL
INSTRUCTION ON UNIT 2: Y1957V14RBL
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Figure G-3. (Continued)

TABLE 2 NOISE IMPACT FOR EACH YEAR IN THE TIMESTREAM

DEGFAC1:04/23/81

	TOTAL US POPULATION	POPULATION EXPOSED >55DB, PEXP	RELATIVE EXPOSURE PEXP/TOPOP	POPULATION IMPACTED POPIMP	LEVEL-WEIGHTED POPULATION LWP	NOISE IMPACT INDEX, NII= LWP/TOPOP	CHANGE IN LWP DLWP= LWPO-LWP	RELATIVE CHANGE IN IN LWP RCI= DLWP/LWPO
UNIT>	MILLIONS	MILLIONS	PERCENT	MILLIONS	MILLIONS	PERCENT	MILLIONS	PERCENT
YEAR								
1974	216.70	82.11	37.89	82.11	25.67	11.85	0.0	0.0
1980	232.80	87.78	37.71	87.78	27.70	11.90	-2.04	-7.93
1985	246.08	90.81	36.90	90.81	27.78	11.29	-2.12	-8.24
1990	259.37	93.19	35.93	93.19	27.46	10.59	-1.79	-6.98
1995	272.24	99.90	36.69	99.90	29.16	10.71	-3.49	-13.61
2000	285.11	110.31	38.69	110.31	32.56	11.42	-6.89	-26.84
2005	297.99	121.49	40.77	121.49	36.35	12.20	-10.68	-41.62
2010	310.86	132.88	42.74	132.88	40.34	12.98	-14.67	-57.16
2013	318.59	140.03	43.95	140.03	42.91	13.47	-17.24	-67.15

Figure G-3. (Continued)

TABLE 3 AREA SPECIFIC IMPACT METRICS *DEGFAC1:04/23/81*

		AREA TYPE, J									
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
YEAR	VARIABLE	PEXP AND LWP IN MILLIONS, NII IN PERCENT.									
1974	EXPOSED>	29.68	12.73	7.92	10.45	5.40	3.49	3.56	7.07	1.79	82.11
	NII, % >	16.77	18.59	15.79	17.60	15.34	13.02	12.22	11.97	0.63	11.85
	LWP >	9.29	4.21	2.54	3.31	1.68	1.00	1.08	2.15	0.40	25.67
1980	EXPOSED>	32.48	13.76	8.55	10.75	5.57	3.60	3.67	7.27	2.13	87.78
	NII, % >	19.12	18.94	16.11	17.94	15.66	13.30	12.46	12.22	0.67	11.90
	LWP >	10.25	4.59	2.77	3.44	1.75	1.05	1.13	2.24	0.49	27.70
1985	EXPOSED>	34.16	14.61	9.08	10.76	5.53	3.56	3.70	7.31	2.10	90.81
	NII, % >	18.38	18.20	15.45	17.13	14.81	12.52	11.87	11.60	0.60	11.29
	LWP >	10.48	4.72	2.84	3.33	1.68	1.00	1.09	2.16	0.47	27.78
1990	EXPOSED>	35.60	15.38	9.55	10.71	5.45	3.50	3.71	7.34	1.96	93.19
	NII, % >	17.47	17.27	14.64	16.16	13.81	11.63	11.19	10.89	0.50	10.59
	LWP >	10.57	4.77	2.87	3.20	1.59	0.94	1.05	2.06	0.42	27.46

Figure G-3 (Continued)

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TABLE 3 AREA SPECIFIC IMPACT METRICS (Continued)

		AREA TYPE, J									
		1	2	3	4	5	6	7	8	9	ALL J
PLACE SIZE, THOUSANDS		OVER 2000	1000-2000	500-1000	200-500	100-200	50-100	25-50	5-25	RURAL	
YEAR	VARIABLE	PEXP AND LWP IN MILLIONS, NII IN PERCENT.									
1995	EXPOSED>	38.64	16.78	10.42	11.14	5.65	3.63	3.91	7.70	2.03	99.90
	NII, % >	17.81	17.56	14.89	16.40	13.97	11.78	11.39	11.07	0.48	10.71
	LWP >	11.40	5.14	3.09	3.29	1.63	0.97	1.08	2.13	0.43	29.16
2000	EXPOSED>	43.09	18.76	11.66	11.95	6.08	3.93	4.24	8.30	2.31	110.31
	NII, % >	19.07	18.75	15.92	17.54	14.96	12.69	12.24	11.90	0.52	11.42
	LWP >	12.86	5.80	3.50	3.57	1.77	1.06	1.18	2.32	0.49	32.56
2005	EXPOSED>	47.94	20.84	12.97	12.79	6.52	4.25	4.58	8.95	2.65	121.49
	NII, % >	20.43	20.04	17.04	18.79	16.07	13.71	13.18	12.80	0.57	12.20
	LWP >	14.50	6.53	3.94	3.88	1.93	1.16	1.29	2.53	0.56	36.35
2010	EXPOSED>	52.92	22.94	14.31	13.62	6.97	4.56	4.91	9.61	3.03	132.88
	NII, % >	21.81	21.32	18.16	20.03	17.18	14.75	14.13	13.71	0.63	12.98
	LWP >	16.24	7.30	4.42	4.20	2.10	1.27	1.40	2.76	0.67	40.34
2015	EXPOSED>	56.05	24.27	15.16	14.14	7.25	4.76	5.11	10.02	3.28	140.03
	NII, % >	22.67	22.12	18.87	20.81	17.88	15.40	14.73	14.28	0.67	13.47
	LWP >	17.36	7.79	4.72	4.40	2.20	1.34	1.47	2.90	0.73	42.91

TABLE 4 IMPACT METRICS BY ROADWAY TYPE, IN MILLIONS *BEGFAC1:04/23/81*

YEAR	VARIABLE	ROADWAY TYPE, K						TOTAL ALL TYPES
		1	2	3	4	5	6	
1974	EXPOSED>	2.43	2.02	11.53	16.01	14.45	35.67	82.11
	IMPACTED>	2.43	2.02	11.53	16.01	14.45	35.67	82.11
	LWP >	1.83	1.40	6.07	5.48	3.71	7.18	25.67
1980	EXPOSED>	2.60	2.17	12.18	16.96	15.36	38.51	87.78
	IMPACTED>	2.60	2.17	12.18	16.96	15.36	38.51	87.78
	LWP >	1.98	1.50	6.50	5.91	4.01	7.81	27.70
1985	EXPOSED>	2.71	2.25	12.69	17.64	15.56	39.96	90.81
	IMPACTED>	2.71	2.25	12.69	17.64	15.56	39.96	90.81
	LWP >	2.02	1.48	6.53	5.97	3.90	7.89	27.78
1990	EXPOSED>	2.80	2.30	13.17	16.25	15.56	41.11	93.19
	IMPACTED>	2.80	2.30	13.17	18.25	15.56	41.11	93.19
	LWP >	2.02	1.43	6.48	5.95	3.73	7.84	27.46

Figure G-3. (Continued)

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TABLE 4 IMPACT METRICS BY ROADWAY TYPE, IN MILLIONS--Continued 'DEGFAC1:04/23/81'

YEAR	VARIABLE	ROADWAY TYPE, K						TOTAL ALL TYPES
		1	2	3	4	5	6	
1995	EXPOSED>	2.92	2.39	13.72	19.07	16.31	45.49	99.90
	IMPACTED>	2.92	2.39	13.72	19.07	16.31	45.49	99.90
	LWP >	2.10	1.46	6.76	6.32	3.94	8.58	29.16
2000	EXPOSED>	3.06	2.51	14.31	20.07	17.64	52.71	110.31
	IMPACTED>	3.06	2.51	14.31	20.07	17.64	52.71	110.31
	LWP >	2.25	1.57	7.30	6.97	4.44	10.02	32.56
2005	EXPOSED>	3.21	2.65	14.91	21.05	19.00	60.66	121.49
	IMPACTED>	3.21	2.65	14.91	21.05	19.00	60.66	121.49
	LWP >	2.41	1.70	7.89	7.67	5.01	11.68	36.35
2010	EXPOSED>	3.37	2.79	15.52	22.02	20.28	68.90	132.88
	IMPACTED>	3.37	2.79	15.52	22.02	20.28	68.90	132.88
	LWP >	2.58	1.82	8.50	8.38	5.60	13.46	40.34
2013	EXPOSED>	3.47	2.88	15.88	22.59	20.99	74.23	140.03
	IMPACTED>	3.47	2.88	15.88	22.59	20.99	74.23	140.03
	LWP >	2.69	1.90	8.88	8.83	5.98	14.64	42.91

Figure G-3. (Continued)

TABLE 5 LEVEL-WEIGHTED POPULATION IN DB BANDS ABOVE 55 *DEGFAC1:04/23/81

LWP	DBA RANGE, IDB												
	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
DBA RANGE	91.- 88.	88.- 85.	85.- 82.	82.- 79.	79.- 76.	76.- 73.	73.- 70.	70.- 67.	67.- 64.	64.- 61.	61.- 58.	58.- 55.	
YEAR	MILLIONS OF LEVEL-WEIGHTED PEOPLE												
1974	0.0	0.00	0.00	0.19	0.54	1.26	2.47	3.91	5.25	5.49	4.54	2.02	25.67
1980	0.0	0.00	0.00	0.23	0.62	1.42	2.72	4.25	5.65	5.83	4.83	2.15	27.70
1985	0.0	0.00	0.00	0.17	0.55	1.28	2.58	4.18	5.62	6.00	5.10	2.31	27.78
1990	0.0	0.0	0.00	0.09	0.46	1.10	2.36	4.00	5.53	6.09	5.38	2.45	27.46
1995	0.0	0.0	0.00	0.09	0.47	1.13	2.47	4.22	5.86	6.47	5.82	2.65	29.16
2000	0.0	0.00	0.00	0.13	0.56	1.35	2.84	4.78	6.49	7.11	6.40	2.90	32.56
2005	0.0	0.00	0.00	0.19	0.68	1.62	3.29	5.40	7.20	7.80	7.03	3.15	36.35
2010	0.0	0.00	0.00	0.26	0.81	1.94	3.78	6.07	7.92	8.51	7.69	3.37	40.34
2013	0.0	0.00	0.00	0.31	0.90	2.15	4.10	6.50	8.36	8.94	8.12	3.52	42.91

Figure G-3. (Continued)

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